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PAPER TRADE JOURNAL

MARCH 12, 1956

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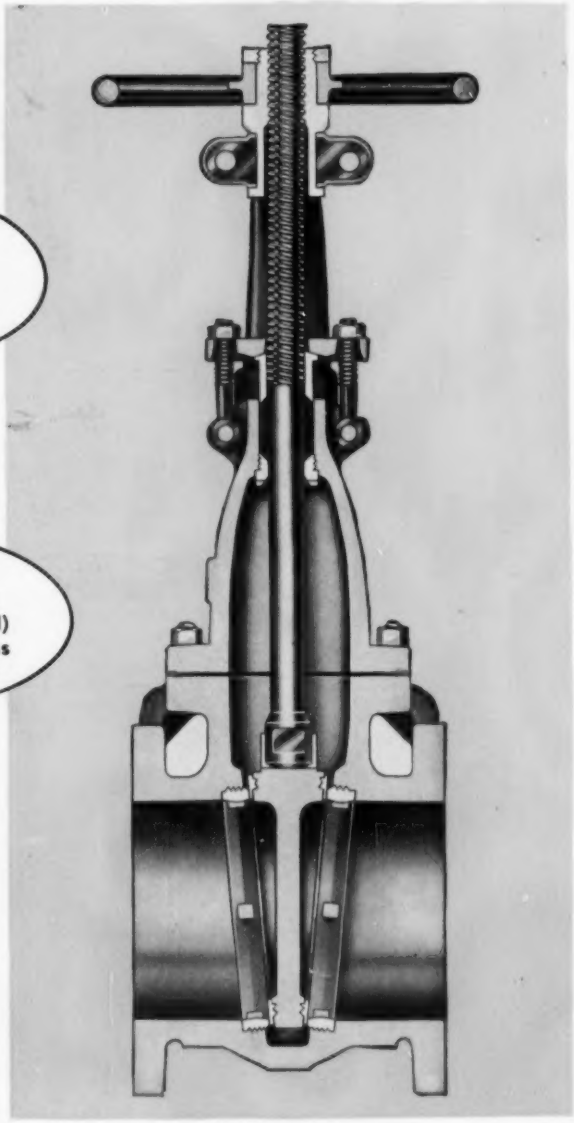

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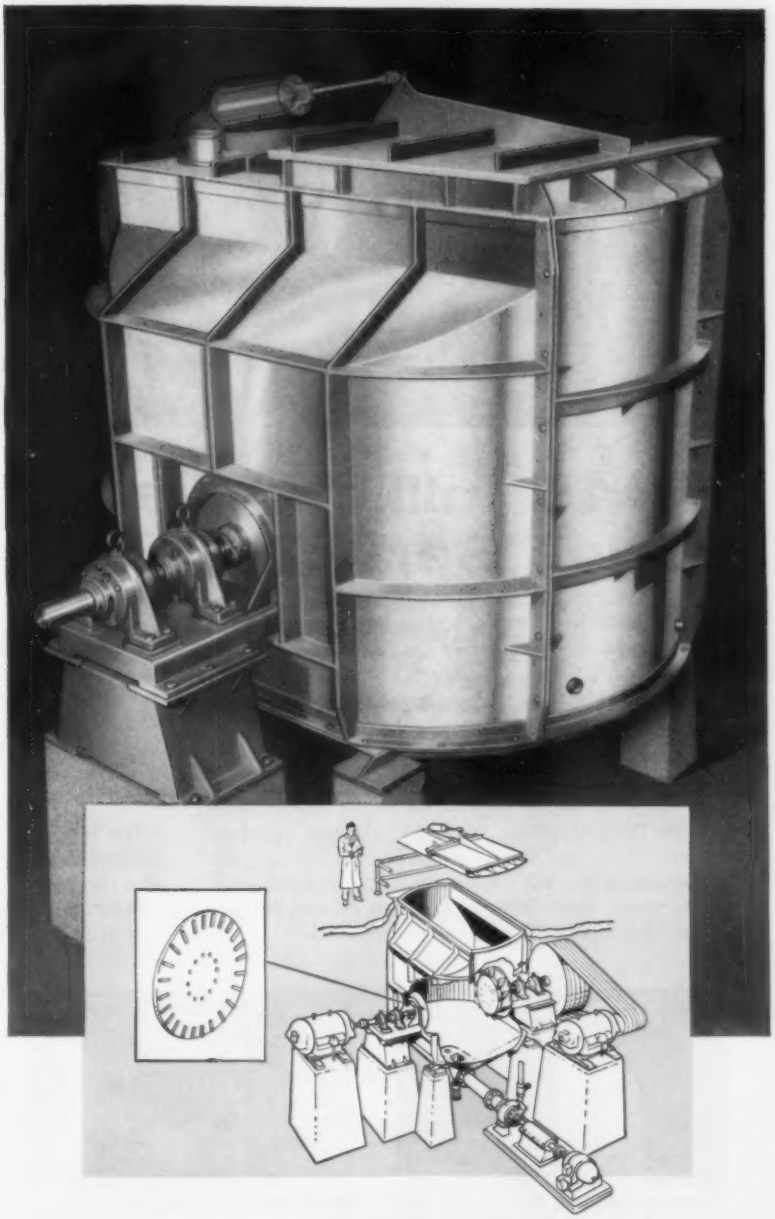
Jones HI-LO PULPER

Completely defibers in less than half the time of conventional pulpers.



Here's the answer to the problem of pulping waste news, wet-strength broke, and other hard-to-treat material.

The unique feature of the HI-LO Pulper is its *two* rotors . . . a large-vaned Lo-Speed one for initial break-up and thorough circulation; a small-vaned Hi-Speed one for complete defibering in minimum time with most efficient use of horsepower.

The HI-LO, will completely separate fibers without cutting. Actual tests show substantial improvement in tear; and in many cases, it will produce treatment on wood pulps superior to a Hollander Beater. Ask your Jones representative for details, or write for Bulletin No. EDJ-1063.

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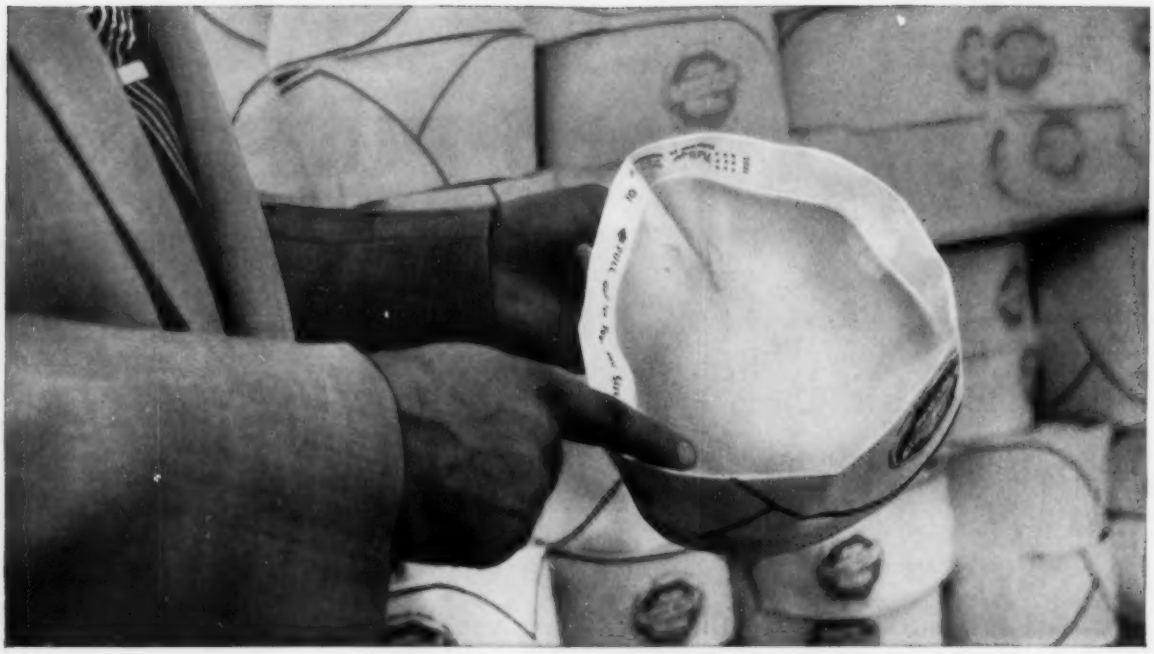


45 million hats a year with Cities Service Pacemaker Wax!

"It stays on hat bands, keeps out of customers' hair," reports Paperlynen Co., Columbus, Ohio.

"Wax is fine for treating paper, but it's not for treating scalps," says Edmund DeVillers, Paperlynen's Production Manager.

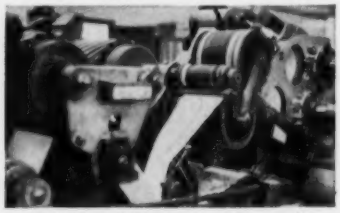
"Being in the paper hat business, we must therefore choose a wax that doesn't go to our customers' heads . . . and that's one of the big reasons for our use of Cities Service Pacemaker Wax. We find it's the best wax there is (and we've used others) for properly penetrating our paper hat bands. If it did not penetrate the bands—and many waxes don't—it would be likely to clog our machines and, worse still, come off in people's hair.

"In addition to completely eliminating such problems, Pacemaker Wax has the necessary non-toxic, non-discoloring characteristics. Moreover, its low degree of vaporization keeps our plant far cleaner than our previous brand. Formerly, for example, we had to steam clean our air-conditioning coils to remove clinging wax—but not since we switched to Pacemaker! I'd recommend Cities Service Pacemaker Waxes to any paper converter."

This is one of a series of outstanding customer reports on Cities Service Pacemaker Waxes. If you'd like to learn what they can do for you, call your local Cities Service Lubrication Engineer. Or write: Cities Service Oil Co., Sixty Wall Tower, New York 5, N. Y.

Designer DeVillers, Paperlynen's Production Manager, keeps price of hats at only 3¢, while constantly improving design and quality. Paperlynen makes 45,000,000 hats a year for conventions, etc.

What Size? Each hat covers sizes 6⅝ to 7⅞ because of adjustable band. For these bands, Paperlynen uses only Pacemaker Wax because it "won't discolor, won't rub off in customers' hair."



Hat Making Machine as it forms hats. Paperlynen, largest firm of its type in the country, says: "We take our 45,000,000 hats off to Cities Service Pacemaker Wax—the best there is."

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U. S. $5.00 per year to pulp and paper mill and converting plant personnel, others $7.50. U. S. Possessions and Canada $7.00. Latin American Countries, $15.00, all others $20.00. Single Copies of regular editions are 25c.

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JOHN C. W. EVANS
EDITOR

D. BRUCE OTIS, JR.
ASSOCIATE EDITOR

DAVID M. HUNTER
ASSOCIATE EDITOR

R. E. THUEMMES
MANAGING EDITOR

ERNEST F. BARKER
FIELD EDITOR

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REMEMBER THESE DATES

APR. 9-11: Annual Meeting of The National Paper Trade Assn., Waldorf-Astoria, New York, N. Y.

APR. 9-12: National Packaging Exposition and Conference, Convention Hall, Atlantic City, N. J.

MAY 7-9: Coating Conference, Benjamin Franklin Hotel, Philadelphia, Pa.

JUNE 12-14: National Meeting of Superintendents Assn., Lake Placid Club, Lake Placid, N. Y.

JULY 9-20: Fifth Statistical Conference co-sponsored by TAPPI and Tech. Sec., Canadian Pulp and Paper Assn., Queens University, Kingston, Ont.

PAPER TRADE JOURNAL

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March 12, 1956, *Vol. 140, No. 11*

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LOCKWOOD TRADE JOURNAL CO., INC., 15 W. Forty-Seventh St., N.Y. 36

Phone Plaza 7-2370

GEORGE E. LOCKWOOD, President and Treasurer
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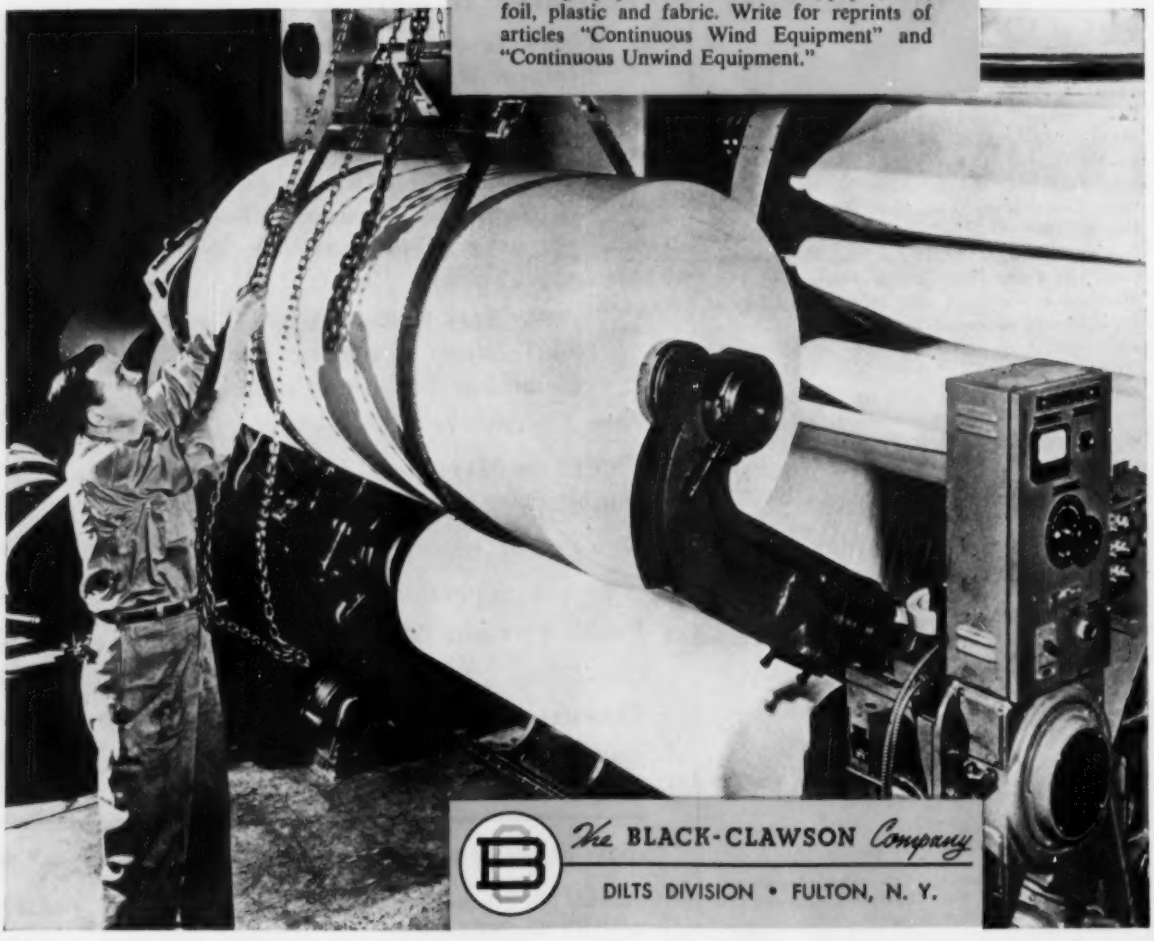
Dilts Winder Increases OZALID Production Efficiency

A Dilts continuous winder added to the famous "Big Bertha" diazo coating machine eliminated approximately 80% of the rewind wrinkle waste for Ozalid, Division of General Aniline & Film Corporation, Johnson City, N.Y.

Now Ozalid gets continuous operation and tight starts with decreased paper waste at the core. Misses of high speed flying splices have been virtually eliminated. Further advantages include—improved tension control and fewer maintenance problems.

The new Dilts Model 42 Winder is a two-arm rotating type with the patented Kohler System flying starter, automatic tension control and push-button control of rotating and cut-off. The incoming core is synchronized with web speed for smooth starts with minimum tension change.

Dilts furnishes continuous unwinding and winding equipment to handle tissue, paper, film, foil, plastic and fabric. Write for reprints of articles "Continuous Wind Equipment" and "Continuous Unwind Equipment."



The BLACK-CLAWSON Company

DILTS DIVISION • FULTON, N. Y.

No Pulpwood Surplus In Dixie

Optimism generated by the report, Timber Resources Review, which claimed the U.S. for the first time is growing more wood than it cuts, is unfounded for southern regions, says Union Bag's woodlands manager W. J. Bridges. The considerable expansion in the South since the survey was started four years ago plus the combined effects of drought and fire, have left Dixie with no current pulpwood surplus, Mr. Bridges insists.

Book Pattern Confirmed

The pattern for a higher price in roll tonnage of machine book paper has crystallized with the recent announcements of Kimberly-Clark, Crown Zellerbach, Oxford Paper, and others. The Oxford change, which is average, was a $7 per ton increase on 45 lb. and heavier paper.

Aussies Can't Conjure Wood

Anxious Australian officials, watching their rising import bill, feel the solution to their problem may be the installation of another newsprint plant. Observers here wonder where they intend to get the wood.

Price Decline Ruled Out

The lowest carryover of rosin stocks since 1951 indicates consumers will not experience a price decline when volume crude gum starts flowing from the trees in another two or three months.

No Grounds For Restraint

Hasty threats of anti-trust action by certain lawmakers and fallacious belief that all mergers restrain trade suggest certain consolidation moves this year are being used as political footballs. Geographic integration plans of Long-Bell Lumber and International Paper are an instance of this situation.

Integration Can Mean Competition

The fact that integration can be a force to preserve or extend competition may perhaps best be seen on the operational level. Allied Paper Mills is closing down a separate coating mill just a few miles from its central operations. Why? Because with one new, fast coating machine in the central mill, it can replace all the production of the outlying plant, bring production costs into line with competitors' and stay in business.

Hemlock Slabs For Bleached Pulp

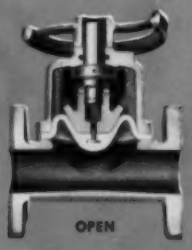
Another step toward complete utilization of our timber has been taken by Government researchers and a far-sighted Michigan professor. The story of how waste hemlock slabs on th Upper Peninsula can be chipped for bleached pulp appears on page 28 of this issue.

Mexico Makes Its Own

The $10 million which Mexico annually pays Canada and the U.S. for newsprint may soon all go to Mexican firms, as the first of two new mills, announced last year, nears completion.

Flow Characteristics
similar to gate valves

- Streamlined straight-through flow
- Minimum pressure drop
- Handles viscous materials without stoppage
- May be rodded or brushed



Advantages
of a diaphragm valve

- Positive closure even with gritty or fibrous materials
- No pockets to trap sludge
- Bonnet mechanism completely isolated from fluid in line
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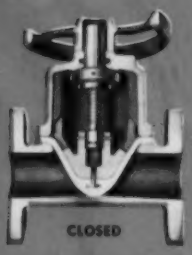
- Simple maintenance



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STRAIGHTWAY
DIAPHRAGM VALVE

For handling viscous materials, slurries, sludges, solids in suspension, sewage and corrosive chemicals, Grinnell now offers a valve which has all the advantages of a diaphragm valve with the added benefits of straight-through flow.

The Straightway Diaphragm Valve* is made in sizes from ½" to 8", screwed or flanged ends, either hand wheel or power operated.

A variety of body, lining and diaphragm materials are available to meet practically all requirements. Descriptive folder gives all details.

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Kindly send me a copy of bulletin describing Grinnell-Saunders Straightway Diaphragm Valves.

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New Paper Mill Planned For Portland, Ore.

A paper and paperboard mill, starting with one machine with a 30-ton daily capacity and provision for adding a second machine later, is to be constructed at 3131 N. Columbia boulevard in Portland, Ore., according to the *Oregon Journal*.

A rail spur and some excavation already has been done on the 28½-acre site owned by Herbert Malarkey, who will build the plant at a cost estimated at approximately a million dollars.

A small fourdrinier papermaking machine will be installed initially and will be equipped to manufacture such items as roofingfelt, shirt board, box board and car lining.

Mr. Malarkey, a Portland plywood, door, wood and plastic pipe and lumber executive, is quoted as saying he hopes to have the first unit in operation by August. A payroll initially of about 75, including engineering and sales departments, is planned.

The operation will buy its pulp on the open market and will utilize some wood waste material in addition, depending on the product manufactured.

Expects Naheola Start-Up in February '58

Reviewing the expansion plans of Marathon Corp., John Stevens, president of the company recently declared that plans are moving ahead for construction of the new pulp and paper mill at Naheola, in western Alabama. Initial installations there will include a bleached kraft pulp mill, with pulp dryer, geared for a daily capacity of 300 tons. The Naheola mill will be equipped with three 186 inch paper machines.

Construction timetables call for the Alabama operation's first paper machine to be in operation by February 1958 and for completion of the project by the fall of 1959, Stevens said. As the first phase of a long-range pulpwood procurement program in the south, the company has purchased timber tracts near Thomasville, Ala., 40 miles southeast of the millsite. In addition, negotiations for long-term pulpwood and wood chip sources now are in progress.

A review of current operations pointed out that Marathon's new flexible food packaging plant at Neenah, Wisconsin, is now in operation on a partial basis and should be in full production by August 1. Plans also are proceeding, Stevens said, for installation of rigid food package facilities in a factory building Marathon has leased at Newnan, Georgia. A new paper machine, the plant's ninth and the company's twentieth, is expected to be in operation at Green Bay, Wis., the latter part of this year.

Equipment Delay Slows R-W Construction

Bottlenecks caused by the Westinghouse strike are causing problems, but the R-W Paper Co., Longview, Wash., hopes to meet its original schedule for starting production at its new plant in May.

R. W. Harper, resident manager, reports that the building is ready and installation of equipment has started. The strike in Westinghouse plants has tied up electric controls, motors and distribution equipment vital to the plant's operation, however.

Temporary electrical drive equipment will be substituted for a turbine which will not be delivered until at least four months after the strike ends. Other substitutions are planned where possible.

The new industry will employ about 85 men in the production of glassine and greaseproof paper. It is owned jointly by the Weyerhaeuser Timber Co. and Rhinelander Paper Co., Rhinelander, Wis.

Small Wash. Groundwood Mill Plans Early Growth

The Washington Pulp and Timber Co. in Longview, (Wash.) is currently considering the installation of a fifth pocket grinder to increase its ground wood mill production, according to Henry C. Armstrong, secretary treasurer and general manager of the company. Mr. Armstrong said that the grinder will be installed some time this year. It is to be connected to existing electrical motors and its installation will, therefore, not require additional power equipment.

Improvement of the mill's wood and log handling department facilities is also planned. Mr. Armstrong did not give specific details of this phase of the improvement but he indicated to *Paper Trade* JOURNAL's editor that the work has already started.

Washington Pulp and Timber Co. experienced a disastrous fire approximately four years ago when its four machines burned, leaving only the ground wood mill in operating condition.

Delay Decision on Scott & Hearst N. S. Mills

Decision on plans for two major pulp and paper mills in Nova Scotia may not be disclosed until about April 1, according to the Toronto *Financial Post*.

A pulp mill for Scott Paper Co. in the Canso Strait area in eastern N.S. and newsprint mill for Hearst Publishing Co. interests at Sheet Harbor, halfway between Canso and Halifax, are being delayed by allocation of timber limits to the two groups, the *Post* understands.

No announcement can be made until the surveys are completed. The target date is said to be April 1.

Lesavoy to Continue Fight of Mill Sale

Attorney for I. L. Lesavoy, principal stockholder in Paper Corp. of America, will appeal federal court approval of $600,000 sale of the firm's Cheboygan, Mich. mill, according to New York *World-Telegram & Sun*.

Lesavoy's previous protest was denied. See page 44 of February 27 issue of *Paper Trade* JOURNAL.

KVP Installs New Power Boiler

A new 900-pound pressure boiler has been placed in operation at the KVP Co.'s Parchment, Mich., mill. Installation of the new unit, together with the turbine, cost $2 million. The improvement project will finally cost approximately $4 million, since the KVP directors recently approved acquisition of a second boiler and turbo-generator unit, similar to those just installed. Installation of these will start soon.

The boiler is of the latest design, equipped with four pulverized coal burners. They are capable of producing 200,000 pounds of steam per hour.

The new 7,500-kilowatt turbo-generator will be placed in operation within a few weeks.

The boiler was purchased from and installed by Combustion Engineering, Inc. Installation of the turbine unit is being supervised by the manufacturer, General Electric Co.

Allied to Close Coating Mill In Otsego

The Bardeen mill of Allied Paper Mills in Otsego, Mich., will be closed May 1 as an economy measure, it was reported last week by the four-man executive management committee of Allied. The mill in Otsego is a coating operation, employing 225 persons.

"During recent years it has become more and more apparent that the coating operation in Otsego is fundamentally uneconomical," the committee declared. "This is true in spite of the best efforts of the supervision and the employes of the Bardeen Mill."

"The distance of the Otsego mill from the papermaking operation in Kalamazoo, plus the high power cost of the mill, are too great a burden for the mill to carry."

Most of Allied's coating operation already is performed in the King and Monarch mills in Kalamazoo and that now being done in Otsego will be absorbed at the Kalamazoo mills by adding a sixth day to coating operations there.

A small amount of the Otsego machinery will be brought to Kalamazoo, but present high-speed machinery in the King and Monarch mills will be able to handle most of the coating work.

Plans for disposition of the plant building are uncertain, but it probably will be put up for sale, the spokesman declared. If not sold, it may be used for storage.

Upholds Alpena Sale to Abitibi

In an opinion handed down by Michigan Atty. Gen. Thomas M. Kavanagh the constitutionality of a bill passed at last fall's special session of the Michigan legislature which authorized the sale of submerged land near Alpena to Abitibi Power & Paper Co. for a new hardboard mill, was upheld.

Constitutionality of the bill was questioned by Gerald E. Eddy, state conservation department director. Mr. Kavanagh held that the bill authorizing the sale included a declaration by the legislature that the public interest would be best served if the land were sold to the corporation because the submerged lands involved are not suitable for hunting and fishing. Under a Michigan law, submerged lands along the Great Lakes shoreline must be held in trust as public hunting and fishing sites; but, said Mr. Kavanagh, it was apparent in this instance that no harm would be done to the public trust in the Lake Huron area.

Mr. Kavanagh also held that the law authorizing sale of the land does not require approval of the voters in the area because it is not a local act.

Paper and Board Production

According to the American Paper and Pulp Association, the ratio of the United States production to mill capacity for the week ending February 25, 1956, was 101.0 percent, compared with 102.4 percent, revised, for the preceding week. The ratio was 98.3 percent for the corresponding week a year ago.

The paperboard production ratio for the week ending February 25, 1956, was 100 percent, compared with 99 percent for the preceding week, and 95 percent for the corresponding week last year.

(Detailed statistics on page 52.)

Federal O. K. Opens Way To Expand Charleston Mill

A 20-million dollar expansion of the West Virginia Pulp & Paper Co. at Charleston, S. C., was made possible by a bill signed by President Eisenhower March 2, Rep. Rivers (D-SC) reports.

The bill, written by Rep. Rivers, permits the government to relinquish its recapture rights to some North Charleston land it deeded to the city some time ago. The company will use this land for part of its expansion.

In return, Rep. Rivers said, the paper company has promised to build a $500,000 dock adjacent to the present Army transportation depot dock and transfer to the government an officers club it owns.

Some other federal property now used by the paper company will be transferred to the city which will lease it to the company, Rep. Rivers added.

St. Regis Files Shares In Rhinelander Deal

St. Regis Paper Co. has filed a registration statement with the Securities and Exchange Commission for 540,000 shares of its $5 par common stock, to be used in its plan to acquire control of Rhinelander Paper Co.

St. Regis said it wants to acquire all the oustanding Rhinelander common stock and will offer its shares to Rhinelander shareholders on a one-for-one basis.

The exchange offer will take effect, St. Regis said, if 90 per cent of the outstanding Rhinelander common shares are deposited for exchange. St. Regis may at its option declare the offer effective if at least 80 per cent of the Rhinelander shares are deposited, however.

Under St. Regis' plan, the Rhinelander, Wis., firm would keep its present corporate organization, but would become a subsidiary. By controlling over 80 per cent of Rhinelander's stock St. Regis could control the latter's business operations.

New Lab for Upson Co.

A building permit has been issued for a research laboratory at the Upson Co., Lockport, N. Y. The application listed the estimated cost of the laboratory at $84,370. An Upson spokesman said construction will begin in the spring. Upson plans to use the laboratory for research into its present product line and for development of new products.

State of Wash. Newspaper Uses Austrian Newsprint

The *Columbian*, a daily newspaper of Vancouver, Wash., has recently printed several issues on newsprint shipped all the way from Austria. Here's what the editors said in the edition of February 17:

"It may surprise *Columbian* readers to learn that this paper is from Austria. That's right, Austria. Which is by way of saying that newsprint in the United States is in short supply and the problem of supplying the demand is complex and acute.

"Most of the *Columbian's* paper comes from Crown-Zellerbach's mill at West Linn, Ore., but there just isn't enough to meet the needs of your growing *Columbian* with its bigger editions and increased circulation. . . . The solution, for the moment, was the importation of newsprint from Austria. But this will close the breach only for a limited time. The next importation of newsprint will be from Norway.

Mexico to Produce Sufficient Newsprint by '58

Mexico may be self-sufficient in newsprint by end of 1957 or early 1958 with completion of two newsprint mills expected to produce 70,000 tons annually, according to dispatch from Mexico, D. F. in New York Journal of Commerce, February 23.

The first newsprint mill is reported to be under construction at Tuxtepec, Oaxaca, and construction of second mill is expected to start during 1956 near Uruapan, Michoacan.

Both mills are being financed by Nacional Financiera through corporations in which N. F. will retain 33 percent of stock. Investments, including initial operating capital, are expected to total 500 million pesos (U.S. $40 million).

Syracuse U. Offers Management Seminar

Billed as a Management Seminar for Executives in Paper Distribution, a three-day instruction program in economics, sales training and cost analysis has been set up by the College of Business Administration of Syracuse University. A phase of the University's adult education activity, the seminar is presented in cooperation with the Empire State Paper Assn.

The program runs from April 25 to 27 inclusive. Further information is available from Miss Eleanor Ludwig, conference coordinator, University College, 601 E. Genesee St., Syracuse 2, N.Y.

Lebanon Machine Switched to Corrugated

B. C. Smith, resident manager of the Lebanon (Ore.) Division of the Crown Zellerbach Corp. last week described in detail the $750,000 expansion program now under way to convert the mill to the production of corrugating medium. Mr. Smith told *Paper Trade* JOURNAL that the modernization of No. 2 machine, which will increase the machine's production from 30 to 70 tons per day, calls for increasing the wire length by 50 percent (to an overall length of 66 feet 9 inches), installing a new head box, new turbine drives, a new couch roll and pit and the installation of a new rewinder.

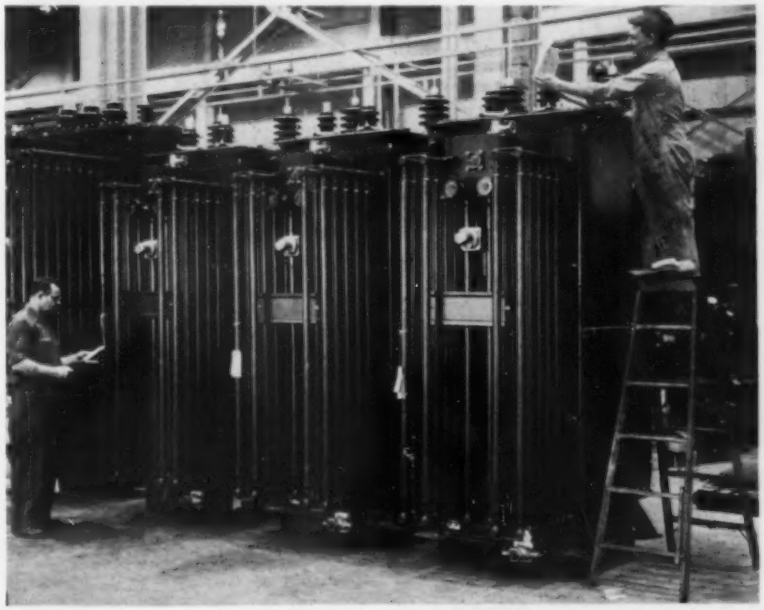
It was revealed that a number of these rebuilding projects are still in the engineering stage but that it is expected that the machine will be down for only about two weeks when the actual work of installing the new equipment takes place. The new head box designed by the mill's own engineering staff, is an open type head box, now being built in the mill's machine shop.

It was explained that with these paper machine changes for switching to the production of corrugated medium from hard cooked sulphite pulp, no further changes are planned in the stock preparation system for the machine. The mill has recently installed a Sprout-Waldron refiner.

The machine's drying capacity will be doubled by adding 29 dryers, bringing the 76 inch trim machine's total dryers to 53. After the changes, weights will range between 30 pounds in paper at 24x36—500 to 33 pounds per thousand square feet in board. At the dry end, a new Cameron rewinder and a new surface wind drum reel are included.

The machine room building was extended at both ends to make the addition possible. At the dry end the machine room was extended by 20 feet by moving the laboratory when the winder was installed. Eighty feet of machine room length are being added at the wet end by actual building extension.

The modernization program also includes the installation of a new 70,000 pound Garett Shaffer boiler. The mill uses ammonia base sulphite pulp made in the division's pulp mill. J. D. Zellerbach, president of Crown Zellerbach Corporation, said in his original announcement that these changes will raise the overall plant capacity from 60 to 100 tons of paper a day.



RUSH ORDER FOR STEVENS—Built in less than five working days, these three 833 k.v.a. transformers came to the rescue of the Stevens Paper Mills plant in Westfield, Mass. . . . Failure of an existing transformer forced the mill to slow to half its production capacity. When no replacement transformers could be found, the rush order for new ones was given to General Electric Corp.'s new Rome, Ga. plant. The three units were finished and tested four and a half working days later. Special shipping priority got them to Stevens in five days.

PAPER PEOPLE

A. B. Moore, Jr.

J. E. Meadows

Two Managerial Promotions At Crossett

Crossett Co., Crossett, Ark., has announced two major promotions in the firm's Paper Division executive personnel group.

A. B. Moore, Jr. was promoted from assistant to the vice-president and general manager of Crossett to production manager of Paper Mill Number Two. Jack E. Meadows was moved up from assistant production manager of Paper Mill Number One to the newly created post of assistant paper division manager.

Mr. Moore will assume the duties of D. B. Kuhe who has accepted a position with Hudson Pulp and Paper Co., Palatka, Fla.

Mr. Moore joined the company in 1937 upon his graduation from the University of Arkansas as a chemical engineer. Progressing through a number of responsible positions, he became assistant to the vice-president and general manager in 1950.

A chemical engineering graduate of the University of Texas, Mr. Meadows came to Crossett in 1945. He became technical assistant to the manager of the Paper Division in 1950 and moved up to assistant production manager of Paper Mill Number One in 1952.

New Officers for Champion-International

William D. Ireland, president of Second Bank-State Street Trust Co., Boston, and Donald J. Hurley, partner of Goodwin, Proctor & Hoar, lawyers, were made directors of Champion-International Co., Lawrence, Mass. C. Daniel Heubeck, Jr., was made vice-president of industrial relations, W. G. Hartford was appointed production manager and Norman I. Bearse, vice-president, was named to the executive committee.

Fulton Goes to Tennessee

H. F. Fulton, formerly groundwood superintendent, Consolidated Paper Corp., Belgo Div., Shawinigan Falls, Que., Can., has moved to Calhoun, Tenn. where he has accepted a position as assistant paper mill superintendent.

Alexander Calder, Jr. Heads Union Bag

Union Bag & Paper Corp. has elected Alexander Calder Jr. president of the company. He succeeds Alexander Calder who remains as chairman of the board.

Mr. Calder Jr. joined Union Bag in 1940. Since that time he has been with the company, except for three years wartime service as a reserve officer in the United States Navy. He has served successively as assistant to the director of industrial relations, assistant to the vice-president in charge of sales and vice-president and assistant to the president. Prior to his election to the presidency, he was executive vice-president and general manager.

At the same time it was announced that Thomas T. Dunn was appointed executive vice-president in charge of manufacturing, and that two vice-presidents of the company, Sydney K. Bradley and Wilton D. Cole, were elected to the board of directors.

Kraushaar Heads Industrial Relations for Allied

Allied Paper Mills, Kalamazoo, a division of Thor Corp., has appointed Phillip F. Kraushaar as director of industrial relations. Mr. Kraushaar comes to Allied from the Kalamazoo mill and Panelyte division of St. Regis Paper Co., where he was personnel manager.

Previously, Mr. Kraushaar was director of personnel for the city of Battle Creek, Mich., and during World War II was in charge of the personnel assignment division at Army Air Force Base, Keesler Field, Miss.

Two New Engineers Join Stone's Mobile Plant

The appointment of James B. Foster as plant engineer and John B. Shearer as industrial engineer at the Mobile paperboard mill division of Stone Container Corp. is just reported by J. R. Boykin, division general manager.

Mr. Foster, a graduate of Alabama Polytechnic Institute, was formerly employed by Waterman Steamship Co., U. S. Engineers, and Aluminum Co. of America. Mr. Shearer, University of Alabama graduate, formerly was associated with the American Bosch Corp.

Stevens and Macon Head Mich.-Wis. Foresters Group

John Macon, of Rhinelander, Wis., research forester for the Consolidated Water Power and Paper Co., Wisconsin Rapids, Wis., has been named vice-chairman of the Michigan-Wisconsin section of the Society of American Foresters.

Dr. T. D. Stevens, head of the forestry department at Michigan State University was elected chairman, and Paul R. Flink, forest entomologist of the Michigan Department of Conservation, secretary-treasurer.

Krieger, Pittsburgh Head For Fort Wayne Corrugated

C. B. Krieger, who has been associated with Fort Wayne Corrugated Paper Co. for two years, has been recently promoted.

In his new position, Mr. Krieger will be Pittsburgh divisional sales manager.

Harry Herr Joins Gulf States Engineering Staff

Harry K. Herr has joined the staff of Gulf States Paper Corp., Tuscaloosa, Ala. He assumes the duties of section engineer (special equipment). Mr. Herr graduated from Purdue University in 1947 with a degree in mechanical engineering.

(Continued on page 40)

NEWS OF CONVERTERS OF PAPER AND PAPERBOARD

GLASSINE PROTECTS COCOA FROM MOISTURE PENETRATION and guards against the loss of flavor and aroma. Royal Instant Cocoa uses heat-sealed, laminated Glassine pouches to package the individual servings of their popular chocolate drink. Measured portions are a boon to hotel and restaurant operators because they assure uniform strength, speed service, and prevent waste. The pouches were designed by Paul Straher, New York City. The carton for the pouches was made by William Fitzhugh, Brooklyn, N. Y., and the pouches were assembled and filled by DuMont Enterprises, Englewood, N.J.

Cornell Steps Into Paper Plate Business

Cornell Paperboard Products Co., Milwaukee, has agreed to acquire all the outstanding capital stock of Superior Paper Products Co., Inc., of Marion, Ind., a specialist marking producer of paper plates for home, bakery and industrial use. Cornell's entrance into a new segment of paperboard converting, the change in ownership will be accomplished by an exchange of Cornell capital stock for that of Superior.

Superior was founded in 1924. W. H. Willen who has served as president of the company for many years and has led the growth and development of the organization will continue as president. No changes in personnel or policies are contemplated as Mr. Willen, together with the existing experienced personnel, will operate the company as an independent wholly-owned subsidiary of Cornell Paperboard Products Co.

Cornell maintains its general offices in Milwaukee and at that location manufactures paperboard, including paper plate stock, shipping containers and folding cartons. A paperboard mill is also operated at Cornell, Wis., in the northwestern part of the state, and folding cartons and corrugated shipping containers are produced in converting plants in Illinois.

Orangeburg Mfg. Enters Plastic Pipe Production

Orangeburg Manufacturing Co., Inc., a maker of electrical fiber conduit and bituminized-fiber sewer pipe, has started work on a plastic pipe plant near its Orangeburg, N. Y., impregnated paper manufacturing plant, according to H. J. Robertson, president.

Completion of the new facility is scheduled for July, with the new product line to be marketed through existing distributors of Orangeburg fiber pipe materials. The firm has another plant at Newark, Calif.

Strine Heads Eastern Container Sales for I. P.

Philip C. Strine has been named manager of eastern sales for the Container Division of International Paper Co. In 1930 Mr. Strine joined the Agar Manufacturing Co. which was purchased by International in 1941. His most recent assignment was manager of the Container Division's Wooster, Ohio, plant.

Robert D. Jollay has been appointed to replace Mr. Strine as manager of the Wooster plant. Mr. Jollay, who has been with the Container Division since 1947, has been assistant sales manager at Wooster since 1953.

Bean & Sons to Establish Matchbook Plant in Peru

D. D. Bean & Sons, of Jaffrey, N. H., a major manufacturer of paper bookmatches, will establish a plant in Lima, Peru in the near future. An initial investment of approximately $250,000 will be made. This probably will be increased to $500,000 within a year or so, according to Vernon J. Bean, executive vice-president.

Ninety-five per cent of the materials employed in making the paper matchbooks will be produced in Peru. This will include bagasse paper and board made at the W. R. Grace Paramonga sugar estate in Northern Peru.

$19,000,000 Plant Planned By American Greeting

Brooklyn, Ohio, Mayor John M. Coyne has announced that American Greeting Card Corp. has submitted plans for its 19 million-dollar office building and plant.

Expansion plans call for a two-story office building covering 160,000 sq. ft., and 1,500,000 sq. ft. of floor space in the plant. The adjoining buildings will be located south of Memphis Ave. and east of the Baltimore & Ohio Railroad tracks.

Mayor Coyne said the company's representative, Attorney Edward Stanton, reported construction will begin immediately if Council approves the industrial rezoning of a 400 by 750-foot strip in the middle of the company's 110 acres.

To be built in sections, the plant's first unit will cover 500,000 sq. ft. It will be used as a shipping center and warehouse.

The company will build its own storm sewer and pay its proportionate cost of a sanitary sewer in the area.

Chapman Brothers Form Box Company in Phoenix

Sidney B., Ralph W. and Arthur E. Chapman, brothers, of San Diego, Calif., have formed the Arizona Paper Box Co. When their plant in southeast Phoenix gets into full production a few weeks hence, they will hire about 30 persons. Most of their orders are for vegetable cartons, but merchants and stores are also supplied with packaging material to their specifications, with their labels imprinted.

Citerman Sells Hoffmaster Line in New York City

Morris Worsinik, sales manager of Hoffmaster Co., Inc., Oshkosh, Wis. reports the appointment of Eugene Citerman as sales representative for the Metropolitan New York City area. His territory for the Hoffmaster line of paper napkins and table cloths will include New York City, northern New Jersey and Long Island.

A NEW DISPENSER CARTON for use in merchandising small objects such as matches, candy bars, drug and hardware items has been devised by Fibreboard Products Inc., San Francisco. It may be placed on a counter or hung on a wall for easy access. . . . Pictured above is the carton now being produced for Minty-Pix Tooth Picks, printed one color on white patent coated news. . . . The new carton is also a self-contained shipping unit. Printed instruction direct the user to remove a portion of the front panel so the dispensing portion may be titled out.

Pabco Plant Starts Operation

Pabco Products, Inc. has put its new $2,500,000 gypsum plant at Newark, Calif., into operation. The plant will be served by Pabco's own quarries in Nevada. Paper used in the manufacture of gypsum wallboard, sheathing and lath will be supplied by Fibreboard Products, Inc., recently purchased by Pabco, so the plant will be dependent on no major raw materials from outside suppliers. Pabco recently opened a new roofing plant at Wilmington, Calif., and is building another gypsum plant in Florence, Colo.

Gair Advances Van Horn

Wilbur Van Horn, Jr. has been made assistant personnel manager of the Elkhart, Ind. plant of the American Coating Mills Div. of Robert Gair Co. Mr. Van Horn joined Gair as personnel manager of the Middletown, Ohio plant of the ACM Division in 1953. Previously he had been assistant personnel manager of the General Telephone Co. of Indiana.

Toye Joins Ben-Mont

Philip C. Toye has been appointed specialty sales representative for Ben-Mont Papers, Inc., Bennington, Vt. Mr. Toye was formerly connected with American Tissue Mills and Diamond Match Co.'s paper division. He will make his headquarters at the firm's Bennington plant.

International Plans New Converting Plant in Calif.

Plans for construction in San Jose, Calif. of a new converting plant for the production of corrugated fiber shipping containers have been reported by Arthur B. Damon, general manager, Container Division, International Paper Co.

The new plant which will be located at 1601 Las Plumas Ave., will be the second converting plant operated by the company on the West Coast. The other unit is located in Los Angeles. To coordinate operations of these two plants, Mr. Damon announced the following appointments. L. M. Smith will be general manager, West Coast Container Div. operations and D. B. Pooley will be manager, West Coast Container Div. sales. Stanley Bear has been named manager of the new San Jose plant.

Plans call for an overall plant area of about 160,000 sq. ft., including office and a roll stock warehouse designed to accommodate 4,000 tons of kraft container board and Chemifibre corrugating medium. Planned capacity of the new manufacturing unit will be 36,000 tons per year. Equipment will include a modern Langston corrugator and necessary supporting equipment to handle the tonnage.

Joins Western Waxed Paper

Frank Guerena has joined Western Waxed Paper division, Crown Zellerbach Corp., San Leandro as a sales representative.

YOUR LIFE WITH PAPER — This many faceted display first appeared at this year's Paper Week doings and is about to go on tour. The exhibit prepared by American Cyanamid Co. reminds the viewer of how intimately his life is linked with paper.

New Tampax President

Thomas F. Casey has been elected president of Tampax, Inc., whose plants are in Palmer, Mass., and Rutland, Vt. He succeeds the late Ellery W. Mann and is located at the New York offices.

Earle A. Griswold, who has been at the Palmer plant since 1942, was promoted from vice-president, to executive vice-president. He is in charge of all research and manufacturing.

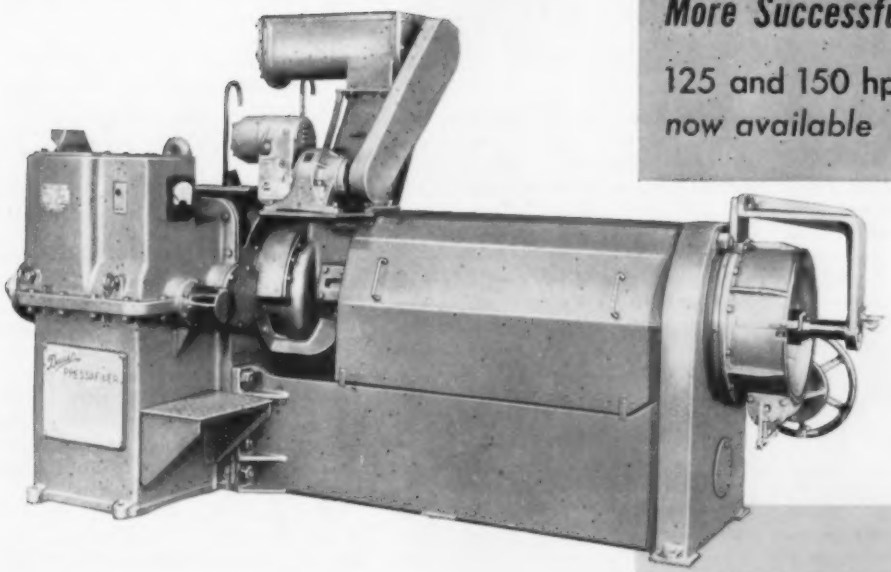
FINGER MAN—John C. Clay, program chairman of the Packaging Institute's Forum Committee, points out site of the 18th Annual Forum. This year the Forum is to be held in Cleveland, Ohio, at the Statler Hotel. The dates have been moved forward to September 10, 11, and 12, making it possible for packaging people attending the Institute's Forum to attend also the Packaging Machinery and Materials Exposition in Cleveland, during that same week in September.

A BOON TO SEMI-CHEMICAL and HIGH YIELD OPERATIONS

Pressafiners HAVE GROWN UP—

New Features
Better Results
More Successful Installations

125 and 150 hp Models
now available



- Pressafiners have doubled in size and capacity since their introduction.
- Now 8½" diameter barrel is standard —giving better drainage, more capacity, and lower power inputs.
- Better pulp quality, improved end-product appearance, fewer shives, and lighter color, with less maintenance, are results of using Bauer Pressafiners.
- By expressing cooking liquors in highly concentrated form, stream pollution problems can be solved.
- Pressafiners have saved up to 50% of disc mill refining power. Power saving gives added capacity in refiners.
- More than fifteen Pressafiners have proved their worth in highly successful commercial installations.

The excellent co-operation of Green Bay Paper & Pulp Co. has made the development of this machine possible, giving the industry higher quality end-products at lower costs. For more details, contact us.

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What the New Techniques in Chemical Cleaning Can Do For Your Equipment

E. W. Hudgens
Dowell Incorporated

New methods have led to wider application of chemical cleaning, and the latest techniques are being included in the regular maintenance programs of many mills.

Chemical cleaning is used in paper mills to remove deposits from process equipment. Periodic cleaning is necessary because such deposits accumulate during operation, reducing capacity and operating efficiency. As efficiency drops, manufacturing costs rise. If any of the units are allowed to become plugged, the unscheduled shut-down can become quite costly to the paper mill operator. Consequently, many mills have set up a regular maintenance program using chemical cleaning to keep their equipment in top operating condition. The resulting increased economy of operation (not to mention avoiding the expensive replacement of badly fouled equipment) more than offsets the cost of such a program.

The use of chemical solvents to dissolve and disintegrate accumulations of deposits, has a number of advantages over other cleaning methods. These advantages include:

1—Minimum disassembly of equipment. Customarily, existing lines are employed when pumping chemical solvent into the unit and when draining the spent solvent, containing the dissolved and disintegrated deposits, from the unit.

2—Minimum down time. Some units can be chemically cleaned during operation. This method, being comparatively rapid, makes possible the scheduling of periodic cleaning operations without seriously interfering with normal plant operation.

3—Thoroughness of cleaning. Chemicals can penetrate into pits and other irregularities of the interior surfaces of the unit, to dissolve deposits. Such deposits, which mechanical scraping does not remove, frequently result in accelerated corrosion beneath the residual scale.

4—Economical cleaning. The savings in down time, increased operating efficiency, and prevention of unscheduled shutdowns provided by the chemical method make it most economical.

New Solvents, New Techniques

Chemical cleaning has been employed in paper mills for a number of years as common practice. However, the development of new solvents and techniques has resulted in the application of chemical cleaning to additional types of paper mill equipment. For example, high velocity jets of chemical solvents are now being used to remove deposits from air preheaters of power boilers and recovery boilers. Tubular type preheaters that have become completely plugged with deposits have also been cleaned by means of jetting. This technique employs high velocity streams of solvent to disintegrate the deposits. Such mechanical aids as the jet nozzle often increase the speed and economy of the chemical cleaning treatment.

Another development, for cleaning nondrainable superheaters, employs the application of vacuum and pressure, alternately, while soaking with solvent, to more effectively clean the elements than did previous chemical soaking methods. Improved acidizing techniques, including the use of Retarded Acid, has increased the effectiveness of plant water well stimulation. Another innovation, fracturing, has effectively stimulated wells, even those producing from acid insoluble formations.

In many mills, certain types of equipment are chemically cleaned at least once or twice a year as a part of their routine maintenance program. Other equipment is cleaned less frequently, depending upon the rate at which deposits accumulate within each unit, and the extent of the decreased efficiency caused by the deposits.

Black liquor evaporators are chemically cleaned regularly in most plants. These units become fouled rather rapidly during operation and can be cleaned readily, using chemical solvents.

The operating efficiency of boilers, both power and recovery, has been maintained at a high level by periodic cleanings. In the power plants, auxiliary equipment such as surface condensers, economizers, feed water heaters, superheaters, evaporators and other units present cleaning problems which frequently can be solved by the chemical method.

Other paper mill equipment included in periodic chemical maintenance programs are: process rolls, pipe lines (both water and process), various types of tube and shell heat exchangers, and filter beds (both pressure and gravity types).

The cleaning of such equipment by the use of chemical solvents is probably fairly familiar to most operators of paper mills. New industrial solvents and cleaning techniques developed during the past few years have increased the scope of chemical cleaning to include the additional types of equipment.

Water Wells

Among the more recent developments has been the use of new and improved techniques for stimulating water wells. The acidizing technique, well known for some time, consists of injecting inhibited hydrochloric acid into the water zone to dissolve the rock. When difficult soluble formations are encountered, intensifiers added to the acid facilitate the reaction with the formation. The treatment normally results in considerable increases

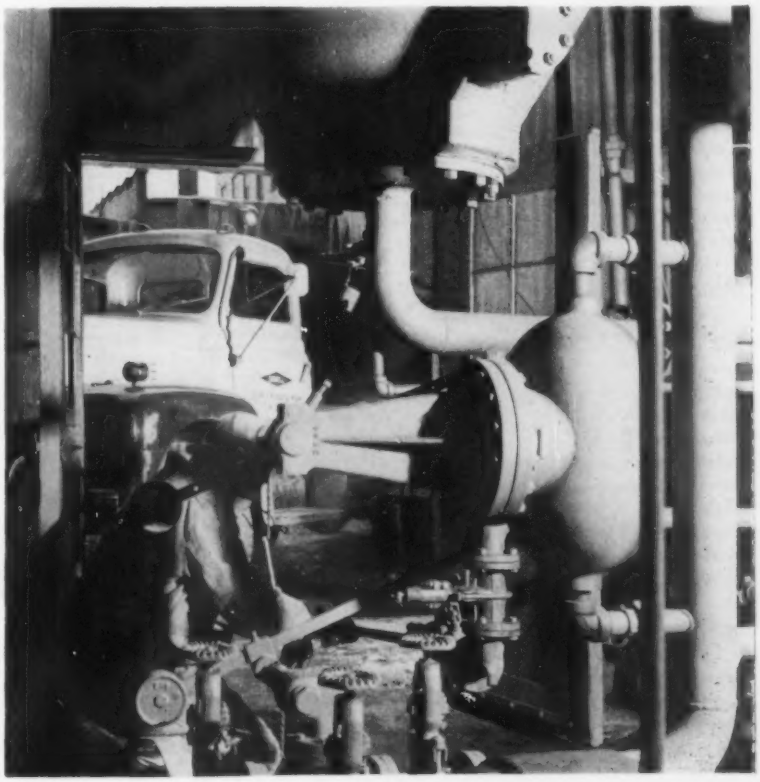
in water production. However, some wells do not show much response to acidizing.

A number of specialized techniques have been developed for the stimulation of such problem wells. The use of Retarded Acid has been one such development. This acid is designed for use in highly soluble limestone formations. Maximum production increases from acidizing can be obtained when the acid penetrates into the formation, rather than spending rapidly in the vicinity of the bore hole. As Retarded Acid reacts, the formation is coated with a temporary film that prevents further reaction. In this manner, the acid can penetrate further into the flow channels in the producing formation, to achieve maximum stimulation. The film, being temporary, does not retard production.

The use of "selective acidizing" techniques has provided improved results in special cases. One of such treatments was employed recently at a southeastern paper mill that required 35,000,000 gallons of water per day to maintain full production. Nine wells, each approximately 1,000 feet deep, were the source of supply. A gradual decrease in water production was attributed to the accumulation of carbonate particles in the flow channels of the limestone formation. As the first step in a program to dissolve these particles and restore normal water production, one of the wells was acidized without pulling the pump or column. Although initial results were satisfactory, within a few months additional stimulation treatment proved necessary. The conclusion was reached that an inadequate quantity of acid had entered the primary water producing zone, the "Ocala" formation located 600 to 700 feet below ground level.

For the subsequent acidizing treatment a unique type of packer was employed to prevent the acid from entering the lower zones, which were non-productive. A bag filled with dry black-eyed peas was lowered into the well by means of a steel cable. After about four hours of soaking, the peas had expanded sufficiently to block the casing, thereby forming a packer which resisted a pull of 100 pounds on the cable. Jelly Seal, an inert viscous fluid, was then pumped into the well to prevent the acid from attacking the bag of black-eyed peas, and to complete the seal. Acid was next pumped into the productive zone, after which the well was shut in. Following the treatment, the spent acid and the Jelly Seal, which is self-liquifying, were pumped out. The peas in the "bean bag" had become mushy, permitting easy removal of the packer. After four to six hours of pumping, the produced water cleared up sufficiently to be used in the plant's water system. Of nine wells to treated, initial gains of ½ to 4½ million

MOBILE PUMPING EQUIPMENT is hooked up to existing connections before pumping chemicals into evaporators to dissolve and remove accumulated deposits.



SERVICE ENGINEERS READY PUMPING EQUIPMENT and prepare to hook up preliminary to chemically cleaning a recovery boiler.

gallons per day, per well, resulted. At least two of the wells would have been abandoned had not such well rejuvenation been possible. The improved decline curves proved the value of the treatments. Another method, developed for treating water wells that do not respond satisfactorily to acidizing, is "fracturing." The fracturing technique employs hydraulic pressure to force open formation passages, permitting water to enter the well bore more readily. It has the advantage of also being applicable to non-acid-soluble formations.

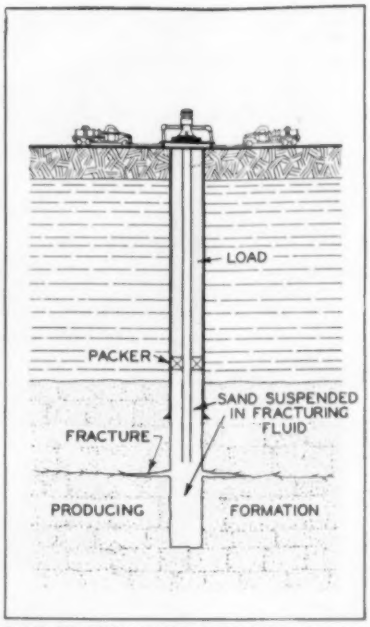
The acid is thickened before being pumped into the well. The purpose of this is to make the acid sufficiently viscous that high pressures will be required to force it into the formation. A sudden drop in pressure indicates that the formation has been broken, facilitating the entry of the fracturing fluid. Sand, carried in the fracturing fluid, scours and erodes the passages as the fluid enters, and remains behind to prop open the passages after the hydraulic pressure is released. The reaction between the thickened acid and the formation results in additional enlargement of the passages. The fluid then thins down and returns to the well bore, leaving the sand behind. The permeability of this residual sand is much greater than that of the original formation, greatly facilitating water production.

Excellent increases in water production have been obtained as the result of fracturing. A municipal water well treated recently increased production up to the capacity of the pump (rated at 500 gallons per minute) from an original production of 275 gallons per minute. It was estimated that the maximum production of the well, upon installation of larger pumps, would be 1250 gallons per minute.

Power Equipment

Chemical cleaning of power equipment has been an established practice in many plants for some time. However, certain components have presented chemical cleaning difficulties due to their design. These include air preheaters, both the tubular and circular revolving types. A system of chemical cleaning employing high-pressure hydraulic "jetting" has been developed in which a chemical solvent is pumped through heavy duty hose and escapes through orifices in the nozzle. These high velocity jets of solvent, striking the deposits, disintegrate them.

For cleaning the circular revolving type preheater, a "jet-head" (nozzle) containing from 15 to 18 orifices is mounted on a support beam just above the preheater elements. The preheater is then revolved slowly and the "jet-head" is moved back and forth across the preheater. The solvent, jetted through the elements at high pressure, is extremely effective in removing the restricting deposits.



THE FRACTURING METHOD of water well stimulation consists of forcing open passages in the producing formation by means of hydraulic pressure.

High pressure jetting often permits chemical cleaning of units in which deposits have accumulated to the extent that solvent cannot be circulated through the unit. Tubular type preheaters sometimes have tubes that have become completely plugged. Before the introduction of chemical jetting, rodding or turbining was necessary to remove such deposits.

This application of the jetting technique employs special lances, inserted in each tube to "jet out" the tube. The orifices are located in the end of the lances at various angles, in order that the jet streams can contact the entire inner surfaces of the tubes. These lances are connected to a common manifold, allowing four or five lances to be used simultaneously.

Although non-drainable superheaters do not readily become fouled, cleaning them can be most difficult because of their design. Solvents pumped into such units tend to remove deposits more effectively at the bottom of the bends than at the top. Air, trapped in the unit, may prevent certain portions of the deposits from being soaked. Thorough flushing to prevent corrosion from residual acid has been equally difficult for the same reasons. Obtaining proper circulation of chemicals is required for maximum effectiveness when cleaning these units.

". . . high velocity jets of chemical solvents are now being used to remove deposits from air preheaters of power boilers and recovery boilers."

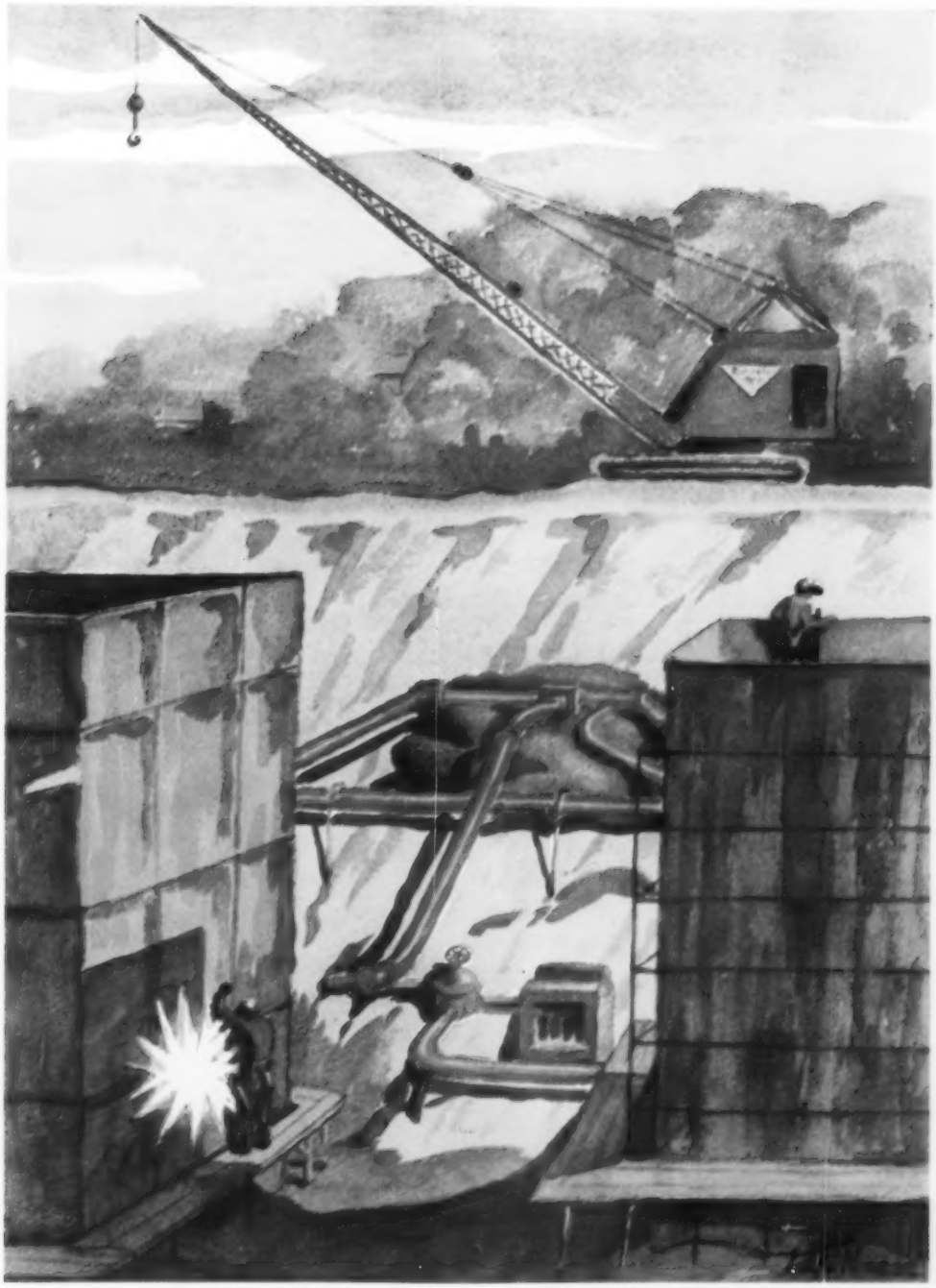
A technique recently applied to the chemical cleaning of such nondrainable superheaters consists of alternately applying a vacuum and pressure to the solvent in the elements. This allows the solvent to contact each leg of the tube bends, alternately. The complete removal of spent solvent, following the treatment, is similarly accomplished. This technique is somewhat more complicated than the average chemical cleaning treatment, however, excellent results have been obtained by its proper application.

Pipe Lines

High pressure jetting has also proved effective in removing deposits from pipelines in which the soaking or circulating methods of chemical cleaning are not practical or possible. When relatively insoluble deposits, such as pulp fibers, are encountered, the use of mechanical aids may prove advantageous. Also, when voluminous deposits or large capacity lines are encountered, the amount of solvent required by the soaking method may prove too costly. In some cases, the use of mechanical aids has reduced the time and expense required for cleaning, even though circulating solvent or soaking methods were applicable.

Water lines, process lines (such as green liquor lines), and sewer lines have been cleaned by jetting. In these applications, the mechanical aid of a jet "mole" may be employed. The mole consists of a jet nozzle attached to a heavy duty hose through which solvent is pumped at high pressures. After the nozzle is inserted in the line, the jets of solvent, directed at a rearward angle, disintegrate the deposits and propel the mole forward through the line. Other jets of solvent are directed forward from the nozzle to soften deposits and permit the mole to break through blocked sections.

These new chemical cleaning methods and applications have been included in the periodic maintenance programs of many pulp and paper mills. Research work now being conducted will broaden the scope and effectiveness of chemical cleaning still further. The application of chemical cleaning by trained engineers and plant operators should prove an increasingly valuable aid in maintaining the high level of productivity of this country's paper mills.



WATER COLOR PAINTING BY L. J. A. NEESE

BELOIT IRON WORKS · PAPER MACHINERY · BELOIT, WIS. U.S.A.

THE FOUNDRY IS EXPANDING at Beloit Iron Works, Beloit, Wisconsin, where steel workers, shown above, are completing the assembly of the huge dryer and roll casting pits, 25 feet below the level of Rock River. Pumps and well points shown in the background control river seepage during construction. This expansion, to be completed during 1956, will provide 100,000 square feet of foundry facilities at Beloit, including a new dryer and roll casting floor, and a new core room.

West End... new producer of salt cake from natural source

The excellent acceptance by large sections of the pulp industry of this white, free-flowing material, guaranteed 99.5% Na_2SO_4, suggests your consideration of West End as a new source of supply. We will be pleased to submit samples, prices and freight schedules on request.

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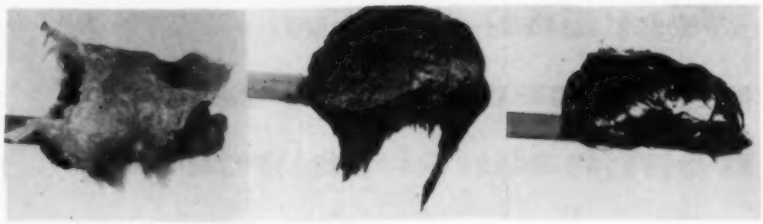
Get to Know Your Greases



Very Fibrous, Spongy Soda Soap Base | Fibrous Soda Soap Base | Smooth, Buttery Li Soap Base

Smooth, Buttery Soda Calcium Soap Base | Smooth, Buttery Calcium Soap Base (Grade No. 5) | Smooth, Buttery (Soft) Calcium Soap Base (Grade No. 1)

FIGURE 1—TEXTURE OF GREASES.

H. Sprague and R. E. Gravrock

Research and Technical Dept.,

Texas Co., Beacon, N. Y.

Understanding of the properties of different grades of grease is made much easier by explanation of the tests used in grease analysis. We are therefore publishing this article to help those who select and use grease rather than the chemist who tests it.

The petroleum testing manual of the American Society for Testing Materials defines "Lubricating grease — a solid to semi-fluid product of dispersion of a thickening agent in a liquid lubricant. Other ingredients imparting special properties may be included." Though fluid lubricants are used in greater volumes, it should be remembered that in nearly every machine there are critical areas where a semi-solid lubricant provides the optimum in lubrication.

In this connection the basic reason for use of the plastic-like greases is that they "stay put" in the space for which they are intended. Lubricating greases usually can be applied by simpler, less costly apparatus than that required for liquid lubricants.

The scope of this discussion is limited to the ordinary laboratory tests which generally are performed on greases. Physical and chemical procedures are described in the first part, and the significance of these tests to various phases of grease technology is considered in the latter discussion.

A summary of the grease procedures and their significance is given in Table I. Table III centerspread summarizes the general characteristics of eight groups of greases and shows typical results obtained from several of the tests described in this paper.

Tests

Appearance and Odor

Although there is no standard procedure for odor and color, these and other visual impressions are very helpful in identifying a grease. These observations may also show contamination, gross instability or non-conformity in manufacture. The color of a grease is sometimes enhanced by the addition of a dye.

Texture

One or more of the following terms generally describe grease texture: buttery, smooth, fibrous, stringy, firm, rubbery or sticky. Service requirements generally dictate the desired texture, and it is achieved by choice of ingredients and by variation in manufacturing techniques. Figure 1 shows how greases differ in appearance. While certain textures are usually associated with particular soap bases, wide variations from normal texture can be achieved by changes in manufacture.

Dropping Point

The dropping point is defined as "the temperature at which the grease passes from a semi-solid to a liquid state." Dropping point has no direct bearing upon the service performance of a grease. In addition, some greases separate an oily phase on heating before the gross melting point is reached. In such cases the dropping point is really a bleeding point.

In the dropping point method illustrated in Figure 2 the thermometer is located just above a thin layer of grease which is placed in a chromium plated brass cup contained in a glass tube. The assembly is placed in an oil bath and heated at a specified rate until a drop of grease (or oily phase) falls through the orifice of the grease cup. The temperature at this point is noted and reported as the dropping point.

Some greases break down in operation near their dropping point while others may be used for a short period of time at temperatures above their dropping point. It is also significant as an indication of uniformity in manufacture and for purposes of identification. This test is not applicable to semi-fluid greases since they flow from the cup at room temperature.

Consistency — Penetration

Greases may vary in hardness from those which are nearly fluid at room tem-

perature to those which are so hard that they can only be cut with a knife or wire. This property is defined as consistency and is undoubtedly the most frequently performed test on greases. They are classified in consistency ranges by penetration in much the same way that oils are classified by viscosity ranges by penetration in much the same way that oils are classified by viscosity ranges.

Flow properties of greases differ considerably from those usually associated with oils. Most greases are not deformed by small forces and under larger forces their rate of movement is not directly portional to the force applied as is the case with petroleum oils.

Another very significant property of greases is that they may lose their consistency and become softer on working. This latter term refers to the movement of one layer of grease in relation to another layer which occurs whenever the grease is handled, stirred or otherwise undergoes movement as in a machine. Because of the change in consistency due to working, the measurements which most significantly correlate with service are those obtained after working.

The most commonly accepted method for measuring consistency is the cone penetration test described in ASTM Method D-217-52T. A sketch of the apparatus is shown in Figure 3. Penetration is measured by the depth, in tenths of a millimeter that a standard cone penetrates into the grease which is at 77°F.

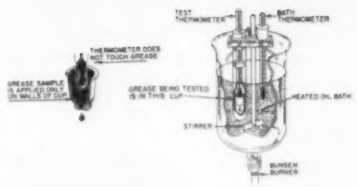


FIGURE 2—Apparatus Used to Determine Dropping Point

The ASTM penetration of greases in original containers or removed from the container with a minimum handling is called "the Unworked Penetration". It is used for controlling manufacture and for determining the consistency of hard greases especially the brick type which cannot be worked easily.

TABLE II—N.L.G.I. CLASSIFICATION

N.L.G.I. Number	ASTM Worked Penetration
0	355-385
1	310-340
2	265-295
3	220-250
4	175-205
5	130-160
6	85-115

The ASTM test for Worked Penetration is the generally accepted method for measuring grease consistency. The ASTM Grease Worker is illustrated in Figure 4. To work a grease, the plunger is forced up and down through the grease for 60 double strokes. The worked penetration is then determined by use of the same standard cone as used for the unworked penetration. This procedure makes for maximum reproducibility, as all samples are worked to the same ex-

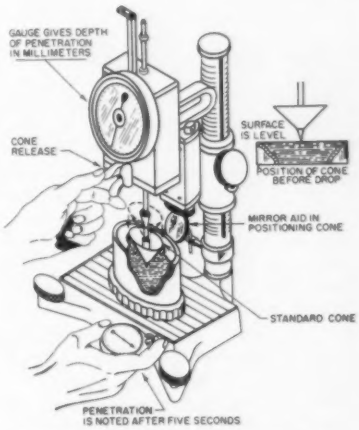

GAUGE GIVES DEPTH OF PENETRATION IN MILLIMETERS
CONE RELEASE
SURFACE IS LEVEL
POSITION OF CONE BEFORE DROP
MIRROR AID IN POSITIONING CONE
STANDARD CONE
PENETRATION IS NOTED AFTER FIVE SECONDS

FIGURE 3—ASTM Penetration Apparatus

TABLE I — LABORATORY METHODS FOR TESTING GREASES

Name of Test	ASTM Designation	Method Summary	Significance
Penetration	D-217-52T	Empirical estimation of the consistency of greases by measuring extent of penetration of a standard cone.	Penetration (worked) classifies unused greases into grades. Measures softening of used greases.
Dropping Point	D-566-42	Temperature (°F.) at which grease drops from hole in standard size cup.	Indicates temperature above which a grease may not be expected to perform satisfactorily but has no direct bearing on the service performance of the grease.
Water	D-128-47	Xylol mixed with grease and distilled — water carried over with Xylol. Volume separated, water measured.	Manufacturing control or measures extent of water contamination.
Ash	D-128-47	Sample is burned, ignited and residue weighed.	Method for estimating non volatile metallic compounds.
Fat	D-128-47	See Table IV.	Manufacturing control.
Free Alkali or Free Fatty Acid	D-128-47	Sample dispersed in 50/50 petroleum ether and alcohol — titrated with standard acid or base solution.	Manufacturing control. Free Fatty Acids may indicate degrees of oxidation of used greases.
Soap	D-128-47	See Table IV.	Manufacturing control — and is also of value in identifying unknown or used greases.
Filler	D-128-47	Grease insolubles determined by using suitable solvent.	Manufacturing control — may be adapted to measure insolubles (dirt, metal chips, etc.) in used greases.
Oil	D-128-47	See Table IV.	Manufacturing control. Measures change in composition of used greases. Separated oil may be identified by usual oil tests.
Glycerin	D-128-47	Glycerin in water extract after acid decomposition is oxidized by periodate to formic acid which is titrated with sodium hydroxide.	Manufacturing control. Indicates whether grease manufactured from fats or fatty acids.
Oxidation Stability	D-942-50	Sample oxidized in bomb in oxygen atmosphere— decrease in pressure indicates degree of oxidation.	Measure resistance of greases to oxidation when stored under static conditions for long periods. It is not intended to predict stability under dynamic service conditions nor stability in commercial containers.
Evaporation	D-972-51T	Sample placed in cell maintained at elevated temperature for 22 hours. Evaporation calculated as loss in sample weight.	Measures loss of oil from greases at 210° to 300°F. Generally used for greases where evaporation loss is a factor.

FIGURE 4—ASTM Motorized Grease Worker

tent immediately before penetrating the sample.

The ASTM Worked Penetration test is often continued for as many as 100,000 strokes in order to indicate the shear resistance, or resistance to softening, of the grease. This has become important in recent years, as some critical applications, such as aircraft magneto gear boxes, cannot tolerate a grease which shears down badly on working. Modern research has developed products which show negligible softening on working, for applications where leakage is a serious problem.

The National Lubricating Grease Institute has developed a classification system for greases based on worked penetration (60 strokes). As illustrated in Table II this allows only a 30 point range in penetration for each class with a 15 point gap between grades.

In the following the performance of greases in service, it is often of interest to determine the penetration when only very small samples are available, as for example, on samples from ball and roller bearings. In such cases, a miniature penetrometer has been developed. This apparatus requires only three to five rather than four hundred to five hundred grams of grease and is illustrated in Figure 5.

Another method for determining penetrations on samples of grease which are too small for the standard ASTM penetrometer and worker is that employing the quarter scale cone. Results by this procedure correlate fairly well with those obtained by the full scale cone.

Consistency — Apparent Viscosity

Another physical test often called for in grease specifications is ASTM Method D-1092 "Apparent Viscosity of Lubricating Greases". A hydraulic system forces the grease through a capillary and the apparent viscosity is calculated from the flow rate and the force developed in the system. The apparatus is ilustrated in Figure 6.

Apparent viscosity of a grease governs to a large extent the ease of handling and dispensing, as well as the starting and running torque of mechanisms that are grease lubricated. This test is carried out only on softer grades of grease.

Oil Bleeding

The separation of oils from lubricating greases is determined by a wide variety of procedures. In one of the typical procedures, a 10 gram sample is weighed on a sixty mesh nickel gauze which has been shaped in the form of a cone. The cone is suspended in a beaker and placed in an oven for a prescribed temperature and interval of time. The oil which drips through the screen is weighed and its per cent calculated.

Considerable care should be used in interpreting oil separation tests since there is little data directly correlating these results with actual field performance. Obviously, gross instability is undesirable, but on the other hand, a small amount of oil bleeding is desirable since it insures immediate lubrication of parts when machinery is first started up.

Evaporation Loss

Another test of interest is the evaporation loss of lubricating greases. In this procedure, the grease is placed in an evaporation cell and heated air is passed over its surface for 22 hours. The per cent evaporation loss is calculated from the loss in weight of the sample. This method is primarily intended for low temperature greases made from oils of low viscosity. From a practical standpoint, it should be remembered that the test is carried out under static, rather than dynamic conditions with ever changing surface such as encountered in service.

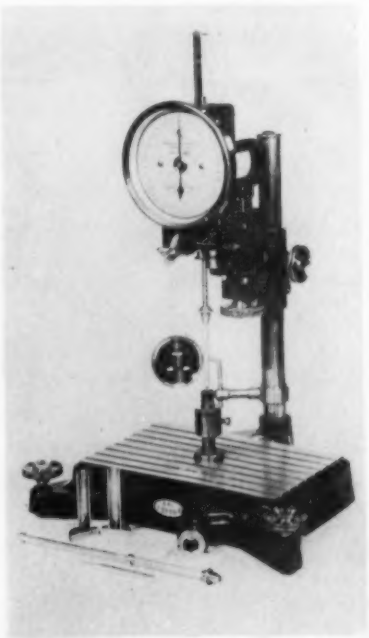


FIGURE 5—Miniature Penetrometer for Very Small Samples.

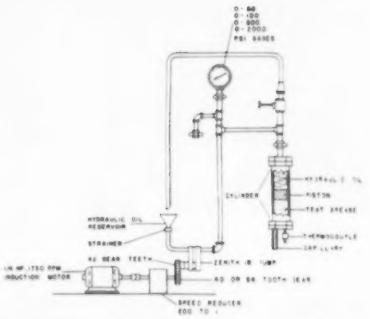


FIGURE 6—Drawing of ASTM Apparatus for Apparent Viscosity.

Water Washout

Over the years there have been many tests developed to simulate the actual environment in which a grease might find itself in service. One of the few such tests which have received official recognition is ASTM D-1264 entitled, "Water Washout Characteristics of Lubricating Greases". Four grams of grease are contained in a ball bearing which is placed in a prescribed housing and rotated at 600 ± 30 r.p.m. Water at either 100 or 175°F. impinges on the bearing housing at a rate of 5 ± 0.5 ml. per second. The amount of grease washed away in one hour is to some degree a measure of its resistance to water washout, although the results of this test may not agree with those in service because of housing or seal design.

Particle Content

Federal Specification VV-L-791e Method 3005.1 determines the size in microns and concentrations of foreign particles in lubricating greases. This is done by actually measuring the particles in the grease placed in a counting chamber of known volume. A compound microscope capable of approximately 60 diameters magnification is employed and the number of particles per cubic centimeter are reported according to size classes. Though the interpretation as to what constitutes a foreign particle is in part left up to the operator, the precision of this method is fairly good. Most specifications allow a few thousand particles in the range of 25 microns or larger. However, one particle larger than 125 microns would generally disqualify a grease.

ASTM has published for information a "Proposed Method of Test for Estimation of Deleterious Particles in Lubricating Grease" which is based on the number

TABLE III — GENERAL CHARACTERISTICS OF GREASES

Soap Base	Texture	Dropping Point (Approx.)	Condition After Heating Above Melting Point & Cooling	Maximum Continuous Useable Temperature	Effect of Water	Resistance to Softening Upon Working	Primary Use	Remarks
Calcium-General	Buttery	200-225°F.	Separates; when properly chemically stabilized has non-separating properties.	175°F.	Resistant	Fair to Poor	General purpose industrial lubricant for plan bearing and line shafting.	Calcium soap greases stabilized with high boiling chemicals instead of water have higher dropping points and can be used to higher maximum temperatures. They return to a homogeneous state upon cooling after being melted.
Calcium Resinate	Buttery	275°F.	Foams at 200° F. Separates on prolonged heating.	200°F.	Resistant	Fair to Poor	Rough heavy bearings operating at slow speeds, also skids, track curves, and wagon wheels.	Usually used where low cost is a major factor.
Sodium General	Fibrous or Smooth	300-450°F.	No change if worked.	300-400°F.	Susceptible	Excellent to Poor (Varies greatly with composition)	Ball and roller bearings operating at low to medium speeds, and light to heavy loads; also on wheel bearings and chassis of automobiles and trucks.	Susceptibility to water can be improved by certain choices in composition. Provides rust protection. Short fibered or smooth textured greases used on anti-friction bearings, while long fibered greases recommended for chassis lubrication.
Sodium Brick Type	Hard-Brittle	300-450°F.	No change.	300-450°F.	Susceptible	Fair to Poor (Varies greatly with composition)	Driving journals of locomotives and similar bearings lubricated with brick greases.	Usually applied directly against revolving journal.
Aluminum	Some Buttery. Some stringy but never fibrous	200°F.	Changes texture upon cooling but does not separate above melting point or below.	200°F. (See remarks)	Resistant	Fair to Poor	Special applications where resistance to centrifugal force or adhesiveness is desired.	These greases change texture upon heating and upon cooling. Therefore, they are not recommended for use above 150°F.
Lithium	Buttery to Stringy	360°F.	No change if worked.	300°F.	Resistant	Excellent to Poor (Varies greatly with composition)	Aircraft lubrication at temperatures from —100°F. to +300°F. and many applications in automotive and industrial use.	The combination of water resistance with high dropping point is advantageous for many applications over a wide range of temperatures.
Mixed Base Sodium-Calcium	Fairly Buttery to fibrous	315°F.	No change if worked.	250°F.	Susceptible	Excellent to Poor (Varies greatly with composition)	All types ball and roller bearings, and special applications at both high and low temperatures depending upon composition.	Mixed base greases are a combination of two or more types of greases. The most outstanding example is sodium-calcium soap base greases, properties of which resemble characteristics of major component.
Solid Thickened Greases	Smooth Buttery to slightly stringy	500 Plus	May harden after heating, but retains grease texture.	Depends on oil component.	Resistant	Excellent to Poor	High temperature applications.	Solid thickeners may be finely divided Clay, Clay derivatives, Silica or Carbon Black.
High-Melting Point-Calcium	Buttery	280°F.	Separates	225°F.	Resistant	Excellent	Ball, roller and plain bearings in automotive use including wheel bearings and chassis; and in industrial plants.	High melting point stabilized calcium base greases have inherent rust proofing properties. They fill the gap between calcium general and sodium base greases.

of scratches caused by such particles on a polished plastic surface. In this fairly rapid procedure, the sample is placed between two clean highly polished acrylate plastic plates which are then rotated about 30° with respect to each other. The number of characteristic arc-shaped scratches give a measure of the deleterious particles. The significance of the number of scratches and particle counts has not been directly correlated with field performance.

Corrosion

Federal Specification VV-L-791e Method 5309.1 measures the corrosiveness of greases to copper by use of a highly polished copper strip about ½ inch in width and 3 inches in length which is partly immersed in a sample of grease. The grease is placed in an oven at 212° F. for a specified number of hours, allowed to cool to room temperature, and the copper strip washed with benzene and examined. The portion of the copper strip which had been in contact with the grease is compared with that exposed to the air during the test. The degree of pittings, etching or staining of the strip is reported as well as any change in appearance of the grease.

ASTM has a method for establishing the effect of grease on copper (D-1261). It involves immersion of a prepared copper strip in the grease which is then subject to oxygen pressure in a bomb at 210° F. The appearance of the copper strip is used as the measure of corrosion.

Oxidation

A procedure frequently employed for determining the oxidation stability of greases is ASTM Method D 942. The apparatus consists of an oxidation bomb assembly illustrated in Figure 7 and an oil bath capable of maintaining a temperature between 209 and 211° F. Four grams of grease are placed in each of five glass dishes held in a rack and this assembly is placed in the bomb which is then filled with oxygen at 110 p.s.i. The oxygen pressure drop in a specified time is a measure of the lubricant's resistance to oxidation under static conditions.

Generally a grease exhibits two stages of oxidation, the first one is relatively slow and termed the "induction period." The second stage is evidenced by a sharp decrease in oxygen pressure during which time the properties of the grease change.

The greatest significance of this test is that it predicts the tendency of a grease to oxidize on ball and roller bearings during shelf storage, but no correlation exists with grease stability under dynamic conditions such as exist in actual bearing service. This procedure will broadly differentiate between greases in respect to oxidation stability and will generally indicate whether the grease contains an oxidation inhibitor. A good uninhibited grease may show a pressure drop of 50 + p.s.i. as compared to a drop of 5 p.s.i. in 100 hours for a good inhibited grease.

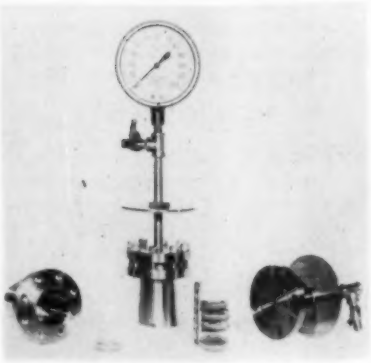


FIGURE 7—Oxidation Stability Apparatus.

Chemical Analysis

ASTM Method D-128 gives procedures for determined the following components of a grease: soap, unsaponifiable matter (petroleum oil), water, free alkali, free fatty acid, fat, glycerine and filler. The method of breaking down a grease for analysis is graphically shown in Table IV. Method D-128 does not apply to greases made with non-soap thickeners nor to those which contain other than petroleum oils. Though the major constituents of the grease are petroleum oil and metallic soap, there may be present in the grease many other components.

Strictly from a performance angle, analysis for the various constituents in the original grease is of little significance. However, the grease producer is very much interested in such information from the standpoint of manufacturing control and for technical service work. Analyses of used greases are very helpful in measuring the extent of deterioration in service, and in detecting contamination as discussed in the following sections.

Significance of Grease Testing

The testing of greases can be logically and conveniently considered in relation to three phases of petroleum technology. These are:

1. Research and Development
2. Manufacture and Control
3. Product Application

Although laboratory tests are used to predict characteristics of greases, the final criterion of a satisfactory grease is its actual performance in use.

Research and Development

Research and Development in connection with greases is concerned with developing new greases, improving existing ones and developing fundamental information on their behavior. In research work, especially if new aspects are being investigated, accepted methods may not be applicable; therefore new tests and techniques must be designed.

Although some aspects of research are referred to as "pure research," the ultimate aim of any program is to obtain information that will eventually be useful in developing products giving better performance.

For example, it was known in the late 1930's, through the use of the optical microscope, that many grease soaps were fibrous. Rough estimates had been made of the lengths of some of these fibers and correlations were drawn between the estimated fiber lengths and the consistency of the parent grease. In these studies, however, nothing was learned of the width, thickness or surface structure of the fibers.

During the last decade tremendous progress has been made, through the use of the electron microscope, in the characterization of soap structures and in the correlation of these structures to the physical properties and behavior of the greases. Early estimates of length were confirmed. Widths and thickness have been accurately measured. Differences in surface textures have been discovered.

We now use such terms as hank-of-hair, two-strand rope, and twisted ribbon to describe the various ways in which the soap micelles or fibrils get together to make the familiar soap fibers.

The immediate and practical purpose of research and development is to formulate a grease that provides satisfactory lubrication for a certain type of application. For example, research might be directed to the development of a grease for high temperature applications. Besides the requirement of satisfactory performance at high temperatures, the development might also be guided by other service requirements and by a customer specification. Merely meeting a specification which covers laboratory tests does not guarantee satisfactory field performance. Only service performance can be conclusive.

During the development of a new grease, or improving an existing formula, much experimental work is necessary to provide an acceptable formulation of a grease. The grease undergoes extensive and complicated laboratory bench testing simulating the most severe conditions to be encountered in actual service.

A formulation that is thought to have the desired performance characteristics, as indicated by laboratory and bench tests, is then ready for actual field trials. If the formulation meets expectations and gives satisfactory field performance, it takes its place with other regularly marketed greases.

Although work may be directed towards developing a grease for a specific application, the experimental formulations may be found to have other exceptional properties.

Manufacture and Control

After the satisfactory nature of a formulation has been established, a relatively few laboratory tests will generally suffice to insure that succeeding batches will have the same characteristics as the prototype. The following tests are usually sufficient to insure continued uniformity in manufacture:

1. Penetration
2. Dropping Point
3. Water
4. Free Fatty Acid or Free Alkali
5. Soap Content
6. Oil Content

Batches of greases intended for special or severe service applications are evaluated by additional control tests which are especially applicable. For example, a grease manufactured to have exceptional oxidation stability would most likely be required to meet a minimum pressure drop in the oxygen bomb test.

Product Application

Testing of greases does not stop after a new grease has been placed on the market. The manufacturer not only follows a new product until he is satisfied that it is completely satisfactory but also periodically checks established products to be sure that quality is maintained. In addition, problems that arise in the field can oftentimes be solved by laboratory tests and examinations. However, laboratory examinations will not always disclose improper maintenance conditions, such as improper bearing packing. Greases, as well as oils, become oxidized, contaminated, and change in physical characteristics in service.

Testing samples of grease from the field has several objectives.

First: To establish the identity of the product. Since many greases may have the same general appearance, it is usually necessary to analyze the sample for its components such as soap, mineral oil, an filler. While appearance and physical tests of a grease are usually helpful in establishing identity, greases may be so radically changed through contamination and use that only tests on component parts are of significance. It is often possible to determine if two greases have been mixed in service provided tests on the component parts of each grease are known. The identification of used greases is frequently required to establish whether the proper grease for the particular service has been employed.

Second: To establish the degree and nature of contamination. Contamination occurs in two ways—(1) accidental mixing into the grease of foreign materials that would be detrimental to the grease or machinery and (2) contamination by wear products, dirt, dust or other environmental material. Since the first type of contamination could include almost anything, only the skill and experience of the analyst can be relied on to discover its nature. Abrasives, drying oils, and paints come to mind as examples of such contamination. Fortunately such contamination is rare. Since most industrial applications are in environments containing dust and dirt, these contaminants are quite common in used greases. Wear metals also are retained in the greases. Since greases cannot be filtered or purified, contaminants must be removed by relubrication to purge the system of the contaminated grease along with the contaminants.

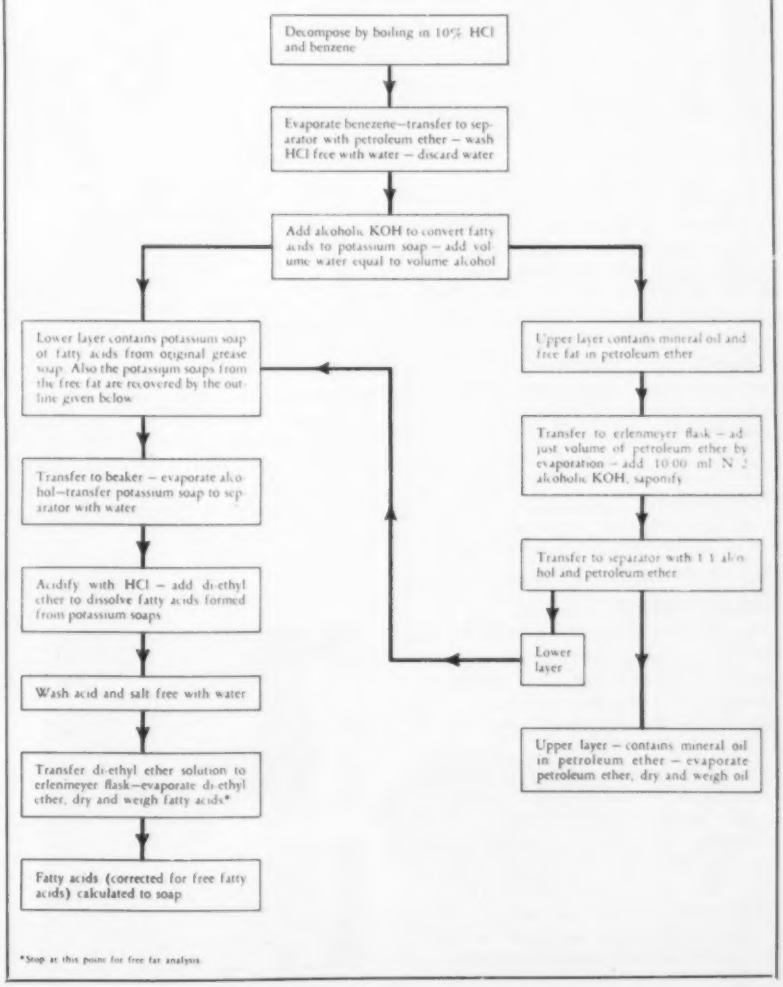
Usually the contaminants are of a solid nature. Recovering them from a used grease for inspection is accomplished by use of suitable solvents. For example, dirt, dust, wear metals and miscellaneous trash could be separated from a grease by extracting with a mixture of benzene and ethyl alcohol. One or a combination of microscopic, spectrographic, and X-ray examinations should disclose the nature of the insolubles.

The form in which the contaminants are found is of prime importance. The presence of alpha ferric oxide (Fe_2O_3) would, in itself, be strong evidence that

TABLE IV

SIMPLIFIED SCHEME OF GREASE ANALYSIS

METHOD ASTM D 128-47


Decompose by boiling in 10% HCl and benzene
Evaporate benezene—transfer to separator with petroleum ether – wash HCl free with water – discard water
Add alcoholic KOH to convert fatty acids to potassium soap – add volume water equal to volume alcohol
Lower layer contains potassium soap of fatty acids from original grease soap. Also the potassium soaps from the free fat are recovered by the outline given below
Transfer to beaker – evaporate alcohol—transfer potassium soap to separator with water
Acidify with HCl – add di-ethyl ether to dissolve fatty acids formed from potassium soaps
Wash acid and salt free with water
Transfer di-ethyl ether solution to erlenmeyer flask—evaporate di-ethyl ether, dry and weigh fatty acids*
Fatty acids (corrected for free fatty acids) calculated to soap
Upper layer contains mineral oil and free fat in petroleum ether
Transfer to erlenmeyer flask – adjust volume of petroleum ether by evaporation – add 10.00 ml N/2 alcoholic KOH, saponify
Transfer to separator with 1:1 alcohol and petroleum ether
Lower layer
Upper layer – contains mineral oil in petroleum ether – evaporate petroleum ether, dry and weigh oil

*Stop at this point for free fat analysis.

fretting corrosion had occurred. The identification of a black iron compound as Fe_3O_4 would indicate a rusting condition of the bearing metals or of metallic particles originating from wear. The presence of silica is an indication that the grease is contaminated with dirt or dust.

The amount of contamination is also important. In any piece of machinery wear is bound to occur. The presence of small amounts of wear metals in used greases is not considered unusual. Extraordinary amounts usually indicate malfunctioning equipment or improper maintenance. An obvious effect of solid contaminants is the discoloration of the grease. Actually it takes only a very small amount of dirt and wear particles to discolor a light-colored product whereas dark colored greases are frequently little changed by gross contamination.

Third: To determine whether the essential characteristics necessary for continued use are still retained by the grease. The analyst must make certain that the structure of the grease has been maintained and that the grease has not become excessively oxidized or contaminated. Since used greases cannot be purified in service, they must be removed to eliminate contaminants and degradation products. Usually, by suitable tests, safe relubrication periods can be established which, if followed, obviate repeated testing of the used grease and insure against machine failures.

Fourth: To resolve field problems and establish reasons for unsatisfactory performance. This involves selecting suitable tests and correct interpretation of test data. In order to do this one must have a precise knowledge of the operating conditions, maintenance practices and of the characteristics of greases involved. A simple example is the case where it is reported that a grease separates in use in an application operating at about 225° F. Investigation might disclose that the grease being used is a water stabilized cup grease which separates into soap and oil at temperatures above 175° F. In this case it is obvious that the wrong type of grease was used.

Conclusions

In selecting laboratory tests to be run on either used or unused greases, only those tests which will give information having a bearing on the problem are worthwhile. Consideration must be given to the type of lubricant, its general nature and composition as well as the application involved. Before marketing a new grease product, a reliable and competent manufacturer evaluates it, not only by chemical, physical, and bench tests but also by extensive field performance tests which include the most severe conditions of operation to which the grease is likely to be subjected.

Air Flotation Used In Upper Peninsula Bark-Chip Separation Project

Promises To Rescue Hemlock Slabs From Fire

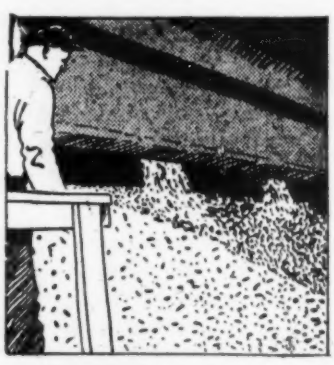
Development work in flotation removal of bark at the Eastern Utilization Research Branch of the U. S. Dept. of Agriculture's Research Service promises economical utilization of hemlock waste slabs on the Upper Peninsula of Michigan. The problem was brought to the Eastern Branch's laboratory, Wyndmoor, Pa., by Walter Koepp, Forest Products Research, Mich. College of Mining & Technology.

Double Utilization

Mr. Koepp believed that the thousands of cords of hemlock slabs being burned every year by Upper Peninsula saw mills could be rescued if the wood and bark could be clearly separated. He foresaw that tannin, in demand by the leather tanners, could be extracted from the bark, right in the Upper Peninsula and shipped out as an extract, while the wood chips could be sold to nearby pulp mills.*

Flotation Applied

Norman F. Roger and Edward L. Griffin, Jr., of the Eastern laboratory, decided that since the specific gravity of the bark is 0.64, and that of the wood only 0.44, these two components could be segregated by air flotation if the slabs could be chipped in such a way that the wood and bark were almost completely detached from each other. After investigation of a number of types of chippers they found one especially designed for slabs which operated very efficiently provided the slabs had been seasoned from 7 to 10 months in the open to reduce their moisture content to less than 20 percent. Not more than one to one-and-a-half percent of the total chips produced by this machine from well seasoned hemlock slabs consisted of attached bark and wood.



First in a small, preliminary experiment, and then in a larger pilot-plant run, hemlock slabs were shipped from the Upper Peninsula to Carthage, New York, where they were seasoned and chipped. Then the chips were sent to the Eastern laboratory where they were screened into five fractions on the basis of size, after which the bark and wood fractions were segregated using an air-flotation specific-gravity separator. This machine consists of a screen-covered oscillating deck, over the entire surface of which a continuous upward flow of air is directed by baffles through the screen. The flow of air, which is strongest at one end of the deck and is gradually diminished toward the opposite, or so-called light, end, floats the light fractions to their point of discharge. Meanwhile the oscillating deck moves the heavier fractions toward the so-called heavy end.

Usable Tannin

Tests showed that this machine was capable of segregating seasoned hemlock slabs into an 80 percent bark product containing 10 percent tannin, and a 95 percent wood chip product. When the tannin was extracted from the bark chips and concentrated, it was found to be similar by analysis to the traditional peeled hemlock-bark tannin that has been used for years to produce heavy leather. The slight contamination of the wood chips with bark did not prevent them from being made into fine bleached paper, since the bark was easily removed by recently developed and widely used pulp-cleaning devices.

Chips Suitable For Bleached Pulp

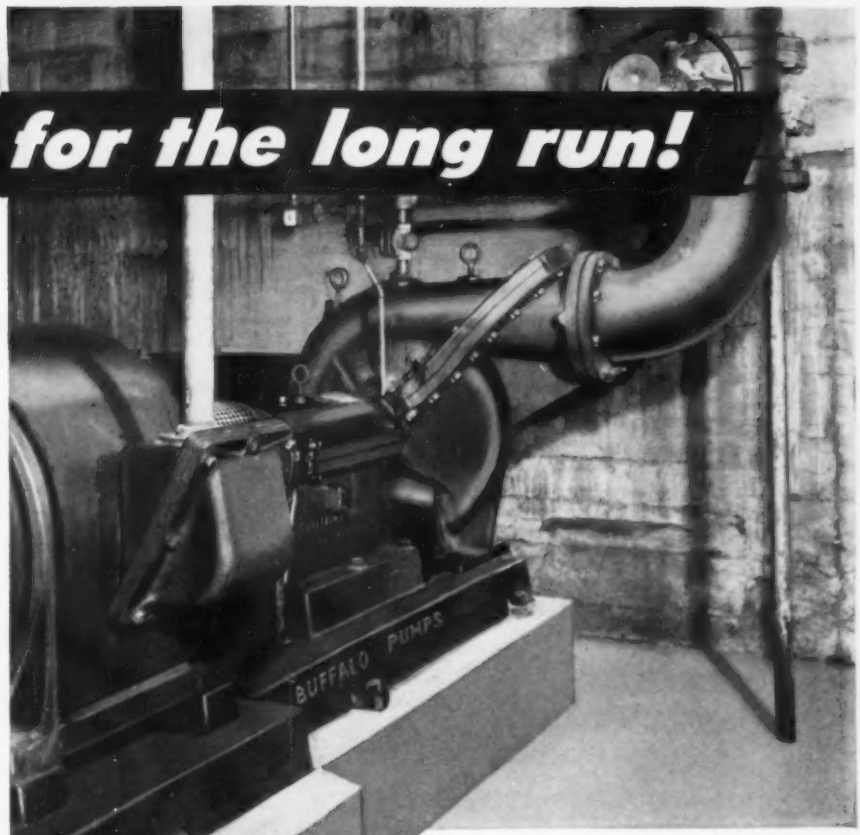
It was found that when wood chips from the separator were made into pulp and cleaned, they could be converted into a bleached sheet of paper as strong and clean as any obtainable from regular-run, mill-peeled hemlock pulpwood.

When the feasibility of the process was thus proved, the economics of the commercial operation were worked out by Clifford S. Redfield of the Eastern laboratory's Engineering and Development Section.

* For a report of similar experiments at Brown Co., Berlin, N. H., see *Paper Trade JOURNAL*, May 9, 1955, pp. 110-112.

"Buffalo"

for the long run!



DIAGONALLY SPLIT-SHELL PAPER STOCK PUMP for handling high consistency stock with low submergence without clogging. (available with booster screw impeller as shown below)

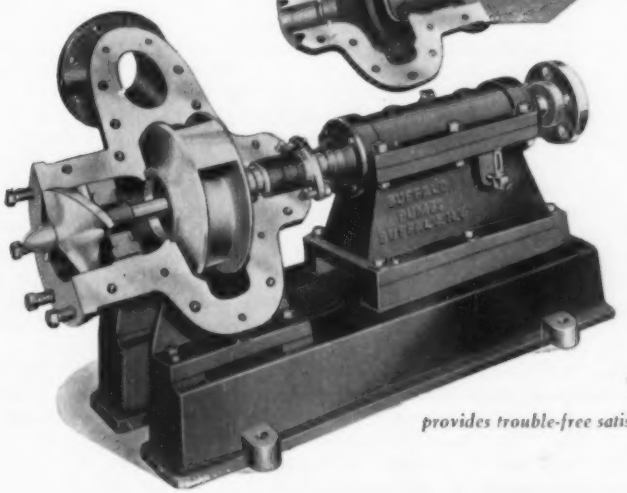
A LOOK INSIDE, with upper half of casing removed, shows extra large inlet —rugged casing with ample, simply formed passages—shrouded, non-clogging, low velocity impeller requiring no wearing plate for its high efficiency. Nothing to cause wear or wedging.

STURDY PUMP STAND for permanent support and alignment of pump, motor and bearing elements.

EASY TO SERVICE! Upper casing half removable without disturbing discharge or alignment. Ready access to impeller and packing rings.

HUSKY SHAFTS, BEARINGS — all oversize to take shock. Large oil reservoir with sight gauge. Large ball bearings.

RIGID, HEAVY DUTY BEARING STAND, machined in one setting for perfect alignment and long bearing life.



A PUMP FOR EVERY STOCK AND CONDITION!

The complete line of "Buffalo" Stock Pumps has been proven thoroughly reliable in every job in the mill over many, many years. Write for Bulletin 953-J showing our latest improved models with the famous "Q" Factor* features that make them the choice of paper men everywhere.

** The "Q" Factor — the built-in Quality which provides trouble-free satisfaction and long life.*

BUFFALO PUMPS

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"Buffalo" PUMPS

A BETTER CENTRIFUGAL PUMP FOR EVERY LIQUID

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Want to Read Faster? Here's How

CHAPTER NINE

How To Skim

The most valuable of reading tools is also the most difficult. Skimming requires much practice, but the extra work can pay big dividends in time saved.

Highly developed skill in skimming is one of the most valuable reading assets which the present-day adult can possess. Skimming is a skill which enables one quickly to select material which he wants to read and to discard that in which he is not interested, or which is inconsequential to the purpose he has in mind. The ability to skim expertly makes it possible for the business man to clear his desk more rapidly than any other one technique. If he is skilled in skimming just a few swift glances will enable him to segregate and organize the miscellaneous pile of papers which confront him. Within a minute he is able to toss into the basket those materials which hold no interest for him, to stack in a pile those things which he needs to read carefully, and to place in another pile those pieces which he may again skim for main ideas. Probably two-thirds of the stack on his desk can be disposed of through the skimming technique, and this includes correspondence.

Clearing a desk quickly is not the only function of skimming. All of us find the skimming technique to be useful in newspaper and magazine reading. We skim to find the articles we wish to read and those which we prefer to skip. Probably most everyone has developed some initial skill in skimming through contacts with newspapers and magazines.

Skimming Most Useful

Skimming is useful in choosing a book to read, whether it is fiction or nonfiction. In selecting a book, it is advisable to skim through three or four volumes for general impressions. Such a procedure yields guidance in the choice of some one book which seems to hold the most promise of affording us personal satisfaction and pleasure.

In selecting a factual chapter or article either in a book or magazine it is helpful to be able to locate a topic of special interest by skimming. If we want to search for one particular fact, then rapid skimming ability is an invaluable aid.

In fact, skimming is a basic reading skill which is useful in all of the kinds of reading that we do. There is no one skill which it is more necessary to possess in this high-tempo age than a highly developed ability to skim. Rarely does the person who is skillful in skimming complain that he doesn't have time to cope with the mass of reading material which confronts him. Proficiency in skimming is really basic in achieving the ability to combat and conquer the present-day reading situation.

Skimming Most Complex

While skimming is the most useful of the reading skills, it is also the most complex. Skimming is built upon and uses all other reading skills which have been discussed in this book. That is why the chapter on skimming is the last instructional chapter to be presented. There is no easy trick that we can tell you which will enable you immediately to become an expert in skimming. All that you have done so far has built the foundation. New techniques will be suggested in this chapter. A high degree of proficiency can come only as a result of stepped-up practice in applying both the old and the new techniques in the right proportions at the right times.

In several of the preceding chapters we have discussed the importance of having a purpose in mind for reading. A strong, leading-on purpose is absolutely essential in successful skimming. Your intent for reading must be clearly formulated and kept uppermost in your consciousness, for how can you skim unless you know what you are skimming for? Is it to find something which you may enjoy as recreational reading? Is it to find an informative article which will contribute to your business, profession or general knowledge? Is it to find main ideas or just one specific fact? Is it to grasp the meaning of something to which you must give attention in your office

communications? Whatever your reason is for skimming, cleave to it throughout your skimming process. If you wander away from this one dominant purpose you are lost.

Catch the Important Words

The procedures suggested in the second chapter have special significance for you now. In skimming you need to force your speed as described in Chapter Two, but with still greater momentum behind it. In skimming you figuratively put on your seven-league boots and ruthlessly "step over" whole passages of content as your eyes fleetingly search for something that you want. So one new attitude that you must cultivate is that of disregarding many words. Fortify your conscience against the habit of looking at every word as you have to do in reading of detailed factual material. In skimming be satisfied to catch meaningful phrases here and there. The nouns and verbs are important but you need waste no time in reading words such as *a, the, that, in, at,* etc. Catch the important words that convey the bare ideas, and let the rest "go by."

Eye Movement Different

A different type of eye-movement is often used in skimming, also. In Chapter Two you were urged to let your eyes move fleetingly across the lines, pausing briefly two or three times to pick up an "eyeful" of words in each line. In skimming your eyes must move even more swiftly, and instead of passing rhythmically across lines, often they may dart in one quick flash from the top to the bottom of a page. Advanced skimmers frequently sweep their eyes straight down the middle of the page or column without moving them either to the right or left. Ordinarily, a person can see from four to five words in one fixation. This field of vision covers words or letters both to the left and right of the fixation. The skimmers who use the middle-of-the-line technique depend upon catching enough meanings from the four or five words which they perceive in the middle of the lines to convey to them the general import of the entire page.

Some less practiced, but still very skillful skimmers, prefer to sweep their eyes from top to bottom on the left side of the column or page. Such skimmers believe that the first few words in the first and perhaps second line of each paragraph are the most meaningful samples of content which they can find in one rapid sweep of the eyes.

Others fleetingly cover all of the first two or three lines of a paragraph, from left to right, then sweep down through the middle of the paragraph to the last sentence which they again skim in its entirety. The technique that you will use will depend upon the one which seems best adapted to you personally for doing the kind of reading which you wish to do at any time.

Skimming is Super-speed

In summing up the speed considerations in regard to this very rapid rate of reading, we might say that skimming is really a superspeed which comes as the result of stepped-up practice. In achieving this super-speed you need to put into effect all of the suggestions for increasing speed which were given to you in Chapter Two, and you need also to develop two new abilities: 1) the ability to "skip over" unimportant words and sections of content which are not pertinent to your purpose; and 2) the ability to use vertical as well as horizontal eye-movements.

Changing your speed technique is not the only consideration in developing a high degree of proficiency in skimming. Knowing how to take a preview, as discussed in Chapter Seven, is also of prime importance. If it is a book that you wish to skim flash your eyes over the table of contents to get an over-all view of the material which the book contains and to decide whether you would be interested in the book as a whole or just in certain chapters. If the book doesn't have a table of contents, flick the pages through hastily taking fleeting glimpses at the chapter titles. Should any of the titles intrigue you, note subheadings and visual aids, if any are provided in those particular chapters.

If the book is factual in nature, it will probably contain an index. Suppose you are interested in finding information about just one topic that is treated in this book. It is possible that this information can be found only in one paragraph in the entire volume. In this case skim the index for the one word that names the topic, then turn quickly to the designated page and read.

The pre-view procedure not only provides you with a skimming technique for rapidly grasping information about a book, chapter or article as a whole but it also enables you to discard or select sections of content within the whole if you decide to dip into the reading text presented. So in all of your skimming, preview first!

If, after your preview, you decide that you would like to skim the content of a chapter or article as a whole or in parts, then two other techniques that you have learned in this book will be your most useful allies in sweeping the page for what you want. These two techniques are: 1) finding the main idea as discussed in Chapter Three, and 2) identifying patterns of writing as discussed in Chapter Six.

Identifying Writing Patterns

If you discover that the author has used the relating-experience or the imparting information pattern, and you wish only to get his most important ideas then use your technique of quickly locating the main idea in each paragraph. Sweep your eyes straight down the middle of the page or column until you find in each paragraph the phrase that names the topic of the paragraph and tells what this subject does, what happened to it or what property it possesses which makes it worthwhile to have a paragraph written about it. Once the main idea is found, don't bother to read further. With a quick flash of your eyes, locate the important idea in the next paragraph, and so on. With practice you can become highly skilled in skimming for main ideas. Watch out for the "Sign Posts" though, as you race along. If you note the "Go Ahead" and "Sharp Turn" words as discussed in Chapter Four, you may save much loss of time in retracing your steps.

Should the author's pattern be the Question-Answer, the Opinion-Reasons or the Substantiated-Facts type, then you will find that any one of these particular patterns facilitates your skimming process in locating the important idea. Should the Question-Answer pattern be used, all you have to do is to skim until you find the answer. If the Opinion-Reason pattern is used, perhaps all you will care to do is to skim for the opinion, omitting the detailed reasons that follow. If the pattern used is that of Substantiated-Facts, perhaps you will just skim for the main fact, and not bother about the several lines given over to substantiations.

Thus it is that you summon to your command many of the techniques which you have learned and use them as they serve you best in making fleeting surveys of reading material which you wish to cover in a hurry as a result of desire or necessity. This skill of skimming can be improved both in speed and understanding as well as any of the other skills which have been discussed.

Practice Exercise

Suppose that you put into practice some of the things which you have been reading about in skimming the article below.

Directions

You are only to take *one* minute in skimming this article. You will be asked one question on the main thought in each of the five paragraphs.

This is what you are to do during the one minute that you work with the article:

1—Glance at the title.

2—Decide upon the pattern of writing.

3—Formulate your purpose for reading the article.

4—Glance quickly at the sub-headings and be sure you grasp their significance.

5—In this case take in the first and perhaps second sentence of each paragraph with a swift glance, then proceed to sweep your eyes straight down through the middle of the rest of the paragraph catching only what you can see in the middle of the line. It would be a good idea to skim the last sentence of each paragraph as a whole.

Glance at your watch planning to stop in one minute.

Start!

What Was It?—It Was Clearly a Petunia

It all began some time ago when the days were still warm. The lady of the house started it by saying she would like to have a potted geranium in the kitchen window during the winter, since there would be no garden to look out upon until late next spring. Later, the gardener, inspecting a small bed where perennials for next season were taking root, found growing between two rows of carnations what clearly was a misplaced petunia—very small, very young and very determined. With a true gardener's sense of thrift, instead of pulling up and throwing away what clearly was a petunia, the gardener obtained a large flower pot, carefully lifted the plant into it and brought pot and plant into the house well before the first frost.

Entree to Kitchen Gained

As tactfully as possible the gardener suggested to the lady of the house that a potted petunia might be a more welcome addition to the kitchen window during the winter than a potted geranium. The lady of the house demurred, commenting that she never had heard of anyone having a potted petunia in the kitchen. It was, however, such a small petunia that, resting in the center of the big flower pot, it had somewhat the appeal of a lost small child. The gardener thoughtfully observed that he had to put the petunia somewhere, and inquired if he might leave it in the kitchen until a better place could be found. As the days passed he observed with interest that what plainly was a petunia was being watered regularly and growing, and that he heard no more requests for geraniums—which, privately, he did not care much for anyway.

Unsettling Discovery Is Made

Some days later the gardener noted, casually, that what plainly was a petunia was growing rapidly, the picture of health. He mentioned the encouraging growth to the lady of the house, who, as if waiting for just this opening, asked if he would mind very much moving the plant, in its pot, to some more desirable location, as its spreading leaves were beginning to get in the way at meal times. Obligingly, the gardener picked up the flower pot and moved it into the dining room window, as he did so getting a good view of the plant's leaves for the first time in weeks. What plainly had looked like a petunia when it was transplanted was beginning not to look like a petunia at all.

Gardener Forced to Confess

Having advertised his importation as a petunia the gardener was, understandably, reluctant to mention his discovery, and decided to let matters rest. Unfortunately, they did not rest long; the next day, looking out of the dining room window over her second cup of breakfast coffee, the lady of the house asked the gardener if he were sure that what he had planted in the pot was in fact a petunia. The gardner had to confess that whatever it was indeed did not now seem to be a petunia. It surely was not a geranium. It plainly was not a number of other things. But what it really was, he said, he did not know.

If Not a Petunia, Then What?

The gardener now wishes he had confessed nothing and had stuck to his story that this was a petunia. For the plant—now a foot tall with spoon-shaped leaves perhaps ten inches long—occupying a conspicuous place in the dining room, has become a conversation piece; all who come to dine ask about it or if they fail to do so the lady of the house tells them the story of her "geranium," much to the gardener's discomfiture. The gardener, after consulting a number of books, has tentatively concluded that he is wintering a fine specimen of nicotiana, but he is not positive. If it is indeed nicotiana and grows no more rapidly than the nicotiana in last summer's garden it will be a long time before he can be sure. The gardener's only hope is that if he is nursing carefully an unidentified weed it will eventually bear large blossoms—resembling, preferably, geranium or petunia.[1]

[1] *New York Times*, "Topics of the Times November 20, 1954.

Checking Your Comprehension

What did you get out of this article in one minute of skimming? See if you can answer these questions in as few words as possible.

1—What kind of a plant did the lady of the house want?

.....

.....

2—Who brought in something that was plainly a petunia?

.....

3—What discovery did the gardener finally make? .....

4—Did the gardener finally identify the plant? .....

5—What did the gardener hope the blossoms would resemble?

(Name two flowers) .....

.....

Check your answers with the key below. You'll probably be surprised to find that you answered all of the questions correctly even though you spent but one minute in skimming the article.

KEY

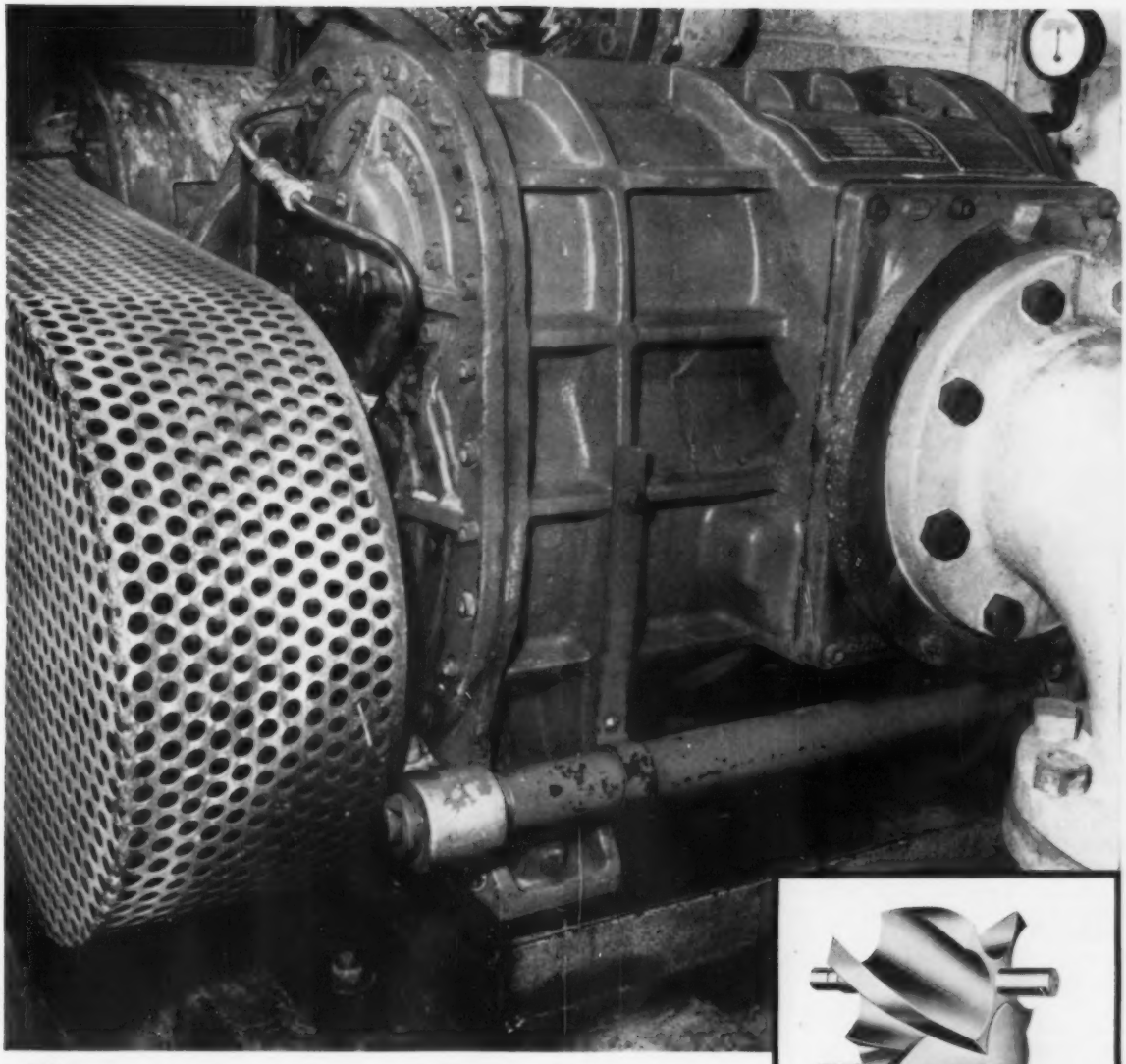
1. Geranium 2. Gardener
3. That it wasn't a petunia 4. No
5. Geranium or petunia.

Follow-Up Practice

Continue with your daily practice periods, and beginning with your next period, devote a part of your time to practice in skimming. Skim to find an article that you want to read. Skim to locate a certain fact or figure that you want to find. Skim to get main ideas in a factual article. Skim to follow the trend of thought in easy, narrative material. Set short time limits such as one minute and see how much you can get out of an article in that time.

As you become more and more expert try the flashing from-top-to-bottom-of-the-page, technique more frequently. With practice you can really become very skillful in gathering meanings through the use of one vertical sweep of your eyes right down through the middle of the page. When you can do this, you may know that you are an expert skimmer!

Dr. Nila B. Smith, world reading authority and author of "Want To Read Faster?—Here's How", will conclude the series in next week's issue. The previous chapter on "How To Preview A Selection", appeared in Paper Trade JOURNAL March 5.



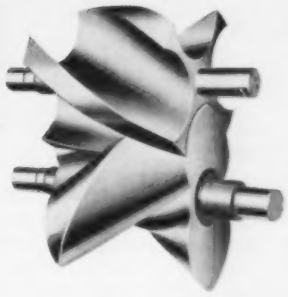
Standardaire pump solves drying and foaming problems . . . cuts maintenance for specialty paper producer

Uneven drying and heavy foaming problems resulting from vacuum fluctuations presented serious obstacles to Raybestos-Manhattan, Inc., in the production of its new, single-fiber asbestos paper.

A Standardaire vacuum pump, installed originally on a 4-month trial basis, entirely eliminated these difficulties. The unit, requiring only half of the area of the former pump, provided a constant vacuum, making possible an uninterrupted flow between the pulp vat and the final windup drum.

Now, after nearly four years of operation, often in excess of rated capacity, this unit still is in prime condition. No maintenance has been required other than lubrication at 3-month intervals.

The compact Standardaire offers greater capacity per pound of pump, with less power consumption, than other units of equal size and weight. Find out how they can help solve your problems. Write for your copy of illustrated bulletin B-154 which provides specifications and operating data.



The Standardaire's even vacuum and high capacity are the result of its exclusive cycloidal, screw-type rotors which compress air in a wide range of pressures with a minimum of internal leakage. Since rotors never touch, there is no friction, no wear or need for internal lubrication.

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CORPORATION

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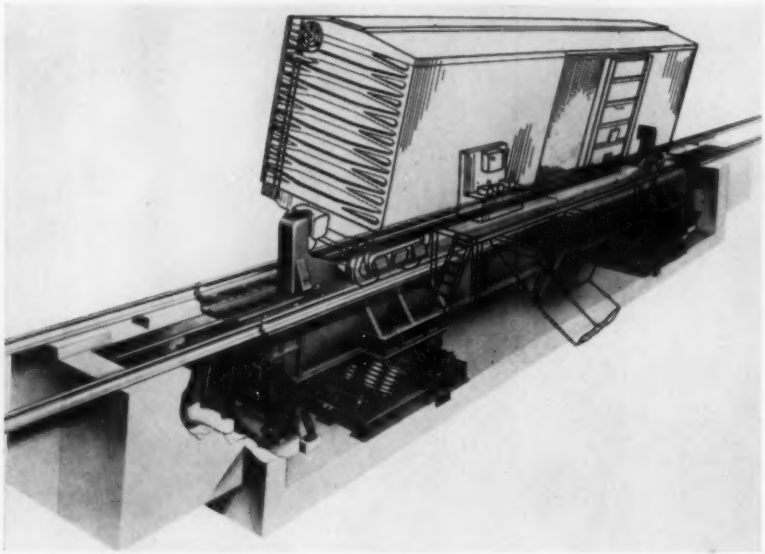
NEW EQUIPMENT AND SUPPLIES



Unloader Handles Four Cars Per Hour

Oscillating motion is now being utilized to empty free flowing bulk materials from railroad boxcars at the rate of four cars per hour through a device just announced by Link-Belt Co., 307 N. Michigan Ave., Chicago, Mich.

The unit, known as Kar-Flo., takes a standard railroad boxcar weighing up to 150,000 lbs. loaded, locks it in its grasp on a steel structure, and then by means of a gentle oscillating or rocking motion of only three inches at the ends of the load empties the car. The car is in no way injured by the operation.

Similar to an iceberg, most of the new unloader is out of sight. The visible portion consists of a pair of rails mounted on a platform next to the receiving hopper, and an operator's platform with control center. The entire unit can be installed in a pit only 7 ft. three in. deep.

The rail furthest from the operator's platform is eight inches higher than the nearer rail. This produces the necessary eight-degree side tilt toward the receiving hopper. The approach rails slope gradually and approximate the bank of a standard railroad curve.

When a boxcar is positioned on the platform of the new Kar-Flo boxcar unloader, two hydraulically-operated end clamps rise from between the rails, move toward the ends of the car, quickly center it and lock it securely to the car platform to prevent endwise movement.

The car door on the unloading side is opened and the inner door removed. Locks on the platform are released, and the drive is started by pushbutton at the control center.

Rotation of counterweights produces an oscillating motion of 140 strokes per minute. Rocker arms convert this into a controlled-path motion which is amplified by spring assemblies to about three inches at each end of the platform.

This rocking produces an actual conveying action, similar to that of the oscillating conveyors which are commonly used in industry to move free-flowing materials. The motion moves the materials from both ends simultaneously toward the center of the car. Because of the side tilt of the car, the contents flow smoothly and continuously through the door into a receiving hopper below.

Only a 25-h.p. motor is required for the main drive, because the balanced car platform utilizes the natural frequency action of the 2½ in. diameter wide coil springs. The 15-h.p. hydraulic system powers the platform locks and the car clamps.

The car platform, weighing approximately 30 tons and consisting of two 36-in. wide-flange I-beams, reinforced with gussets and X-bracings, is designed for passage of switch engines and loaded cars.

LOOK
through the columns of the CLEARING HOUSE
You are bound to see what you need.

Vacuum Transmitter Has No Moving Parts

An immersed float vacuum transmitter, primarily designed for use with F & P automatic proportioning chlorinators, has been developed by Fischer & Porter Co., 555 Jacksonville Rd., Hatboro, Penna.

The transmitter, a force balance type with no moving parts, gives a vacuum signal proportional to the main line water flow. The signal governs the amount of chlorine introduced into the system by the chlorinator. The equipment is suitable for use in Parshall flumes, Kennison nozzles and weirs.

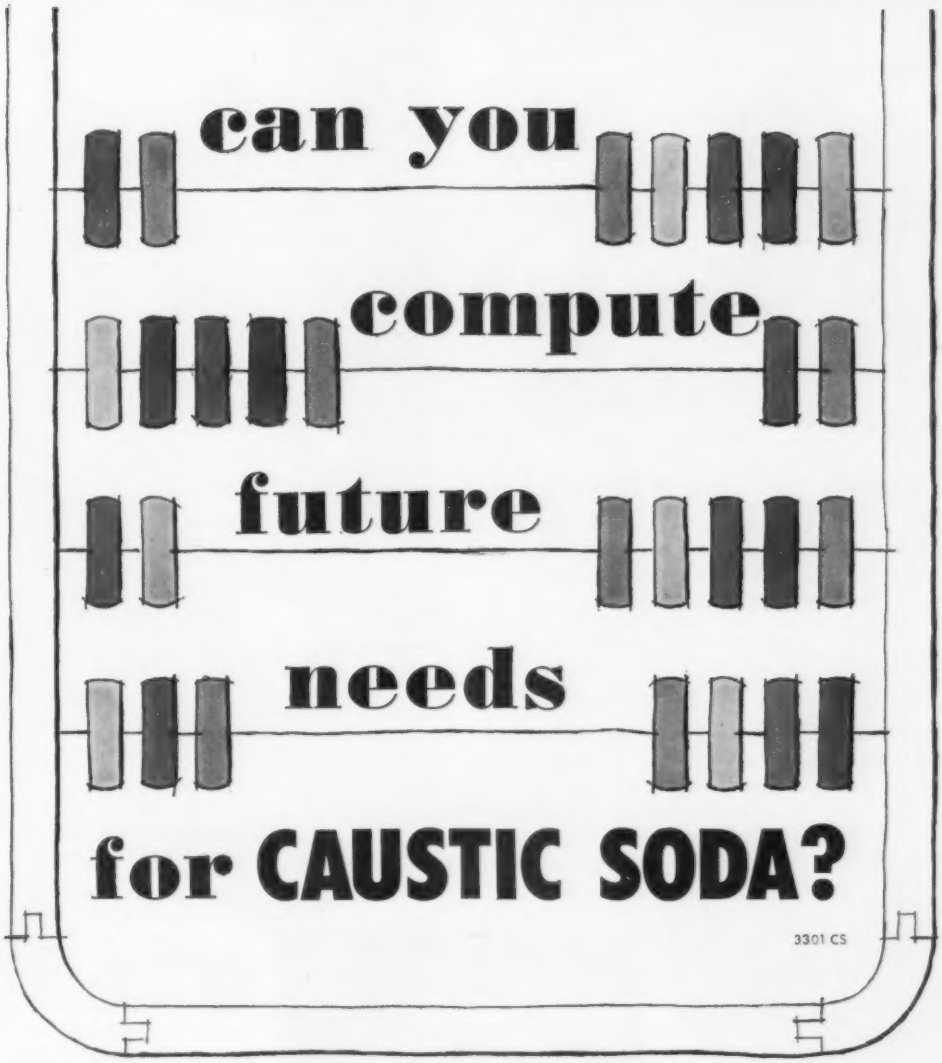
Called Immersed Float Vacuum Transmitter, it is unaffected by chlorine, sewage gases or weather and is said to require virtually no maintenance.

Increase in main line water flow causes the water level in the stillwell to rise, and this in turn increases the buoyancy of the float. As the float decreases in weight, a greater vacuum is transmitted to the chlorinator, causing more chlorine to be introduced into the system. As the water flow decreases and the level in the stillwell drops, the vacuum is throttled to reduce the chlorine flow rate.

The conical-shaped float hangs by a chain from a clevis attached to the vacuum transmitter. The chain length is easily adjusted so that the tip of the float just touches the water at the zero level.

Chain, turnbuckle and metal parts are made of stainless steel, diaphragms of Kell-F plastic, vacuum transmitter body and diaphragm backing plates of Uscolite, and float and transmitter cover of polymer-impregnated fibre glass.

Standard float sizes range from 5 to 30 inches in five-inch increments.



If you're buying chemicals today, chances are you'll be buying even greater tonnages five years from now. Will other companies also have larger needs? Will there be new users?

Coordinated planning and production with Olin Mathieson assures the availability of chemical raw materials regardless of changing market conditions; assures adequate chemical production to supply growing industrial capacity; speeds the development of new chemical products and processes; provides greater flexibility in shipping and handling of materials; provides the personal attention of recognized product experts backed by widely diversified research facilities.

Today, more than ever, an association with an alert, aggressive chemical producer is essential to your future. Olin Mathieson's long experience and familiarity with the broad market picture will prove invaluable in your planning. Why not consult with us *now?*

MATHIESON

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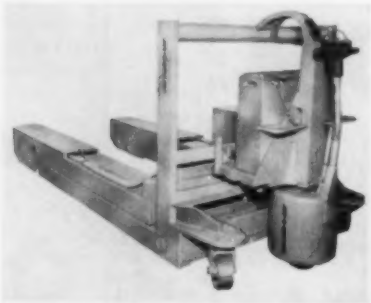
INORGANIC CHEMICALS: Ammonia · Bicarbonate of Soda · Carbon Dioxide · Caustic Potash · Caustic Soda · Chlorine · Hydrazine and Derivatives · Nitric Acid Hypochlorite Products · Muriatic Acid · Nitrate of Soda · Soda Ash · Sodium Chlorite Products · Sulphate of Alumina · Sulphur (Processed) · Sulphuric Acid
ORGANIC CHEMICALS: Ethylene Oxide · Ethylene Glycols · Polyethylene Glycols · Glycol Ether Solvents · Ethylene Dichloride · Dichloroethylether · Formaldehyde Methanol · Sodium Methylate · Hexamine · Ethylene Diamine · Polyamines · Ethanolamines · Trichlorobenzene · Polychlorobenzene · Trichlorophenol

Pumps Available for General Service Applications

Only three parts, the impeller, casing, and back head cradle, vary with capacity in a new line of seven centrifugal pumps, introduced recently for general and chemical service by Dean Brothers Pumps Inc., Indianapolis, Ind. Other parts are standard throughout the line.

Called GS series, the units are supplied in sizes which range from one by two inches to 3 by 4 inches. Pumping capacity extends to 600 g.p.m., and total dynamic head to 275 ft. Pumping temperatures cover a range from minus 40 degrees F. to plus 350 degrees F.

The pump products are described by the manufacturer as an inexpensive quality line of standardized pumps for a wide range of applications where conditions do not warrant a costly engineered unit.



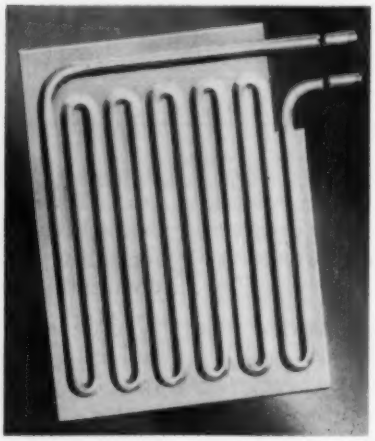
Mechanical Fingers Hoist Palletless Loads

Lewis Shepard Products, Inc., Watertown, Mass., recently revealed a special 16,000 lb. capacity electric truck for in-plant transport of large, bulky loads which rest directly on the floor without pallets or dunnage.

The lifting arms straddle the load to be picked up. Retractable fingers in the arms of the truck are then extended into load slots. When these are engaged the load is lifted. Mechanical fingers are hydraulically operated from the driver's seat.

The truck drive unit is arranged so that the load carrying frame is supported on all four corners by its rear wheels and stabilizing casters. This support ensures good stability for high, heavy loads and also distributes the entire weight of truck and load over five wheels for floor protection.

Lifting arms are 57 in. wide by 84 in. long, and the open end clearance between arms is 29½ in. The lift of the truck is 4 inches.



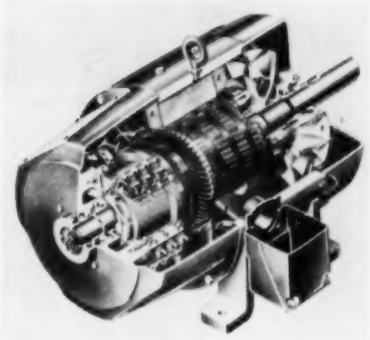
Heat Unit Design Facilitates Application

A line of platecoils featuring serpentine construction and top connection is now available commercially from Tranter Manufacturing, Inc., Lansing 4, Mich.

The heat transfer units are designed to replace pipe coils in industrial processes requiring the application or removal of heat. They consist of two embossed metal sheets welded together to make a preformed channel for the flow of heating or cooling media.

Right angle inlet and outlet fittings on the heat units make them suitable for use in open top tanks. They can be quickly hung in position with all threaded connections above the solution level, permitting quick, easy removal for cleaning or inspection without draining the tank. The serpentine layout of the channel provides continuous, in-line flow of the heating or cooling media.

Style 50 platecoils are provided in 18 or 22 in. widths, and in lengths from 23 to 119 in. Overall thickness is ⅞ in. Metals available are cold rolled steel, stainless steel, and other alloys.



Motor Development Sets New DC Standard

An entirely new line of d.c. motors for all ratings from one to 150 h.p. and all generator ratings from ¾ to 100 kilowatts is available from the General Electric Co., Schenectady 5, N.Y.

Higher base speeds, and higher top speeds for constant horsepower applications are available with the engines, which set a new standard for d.c. motors. Called Kinamatic, the units can operate at any speed below base speed, including stalled torque.

Split second stops and starts, fast reversals and speed changes are made possible through a reduction of armature inertia. Fewer turns per armature coil assure minimum inductive kick when stored energy is released from the coil. Also, a full complement of commutating poles permits greater overloads without magnetic saturation.

Maintenance is said to be substantially reduced, in the products. Brushes are easily accessible through large hand holes. Brush springs may be disengaged with one hand, and hang captive to the brush holder but clear of the brush for easy replacement.

The motors do not have to be disassembled to grease as all fittings are conveniently located. Standard models have rolled steel frames with cast iron dripproof endshields. An eyebolt is provided on all models.

Looks like you could eat it right off the page. This high-fidelity detail, texture and color are typical of what your customers can expect in reproduction from papers processed with Glidden Alpha Protein. (Photo courtesy Durkee Famous Foods)

Tempting reproduction...

SHOWN ON PAPER PROCESSED WITH GLIDDEN ALPHA PROTEIN®

Leading paper manufacturers are now using large volumes of Glidden *Alpha Protein*, the high solids coating adhesive, to improve the printing surface of offset papers and to increase production.

Glidden *Alpha Protein* helps to improve opacity, whiteness and makes possible smoother, more uniform paper which faithfully reproduces fine details and color with depth and brilliance. Press runs are faster, less ink is used, picking is reduced to a minimum.

Users report the extra solids, when using *Alpha Protein* in their coating, result in production increases up to 15 per cent. More solids *mean less drying time*, permit higher machine speeds. And *Alpha Protein* machine-coated papers are being produced that are equal in quality to costlier conversion-coated papers.

Write for details about Glidden Technical Service—it has helped many manufacturers improve quality, speed production and cut costs with *Alpha Protein*.

©. 1956

THE GLIDDEN COMPANY

CHEMURGY DIVISION • 1825 N. LARAMIE STREET • CHICAGO 39, ILLINOIS

QUALITY Glidden PRODUCTS

Where

ARMCO STAINLESS STEEL

Helps Cut Costs

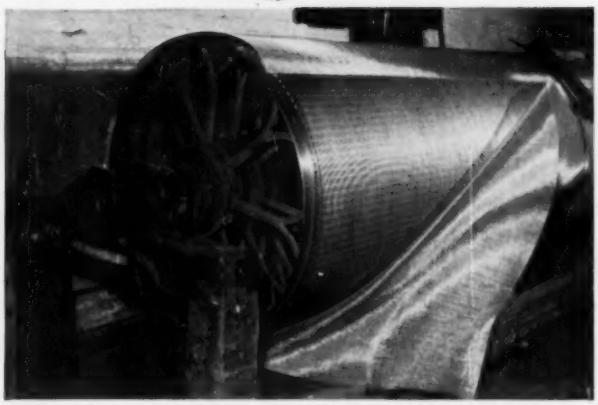
It's easy to see that corrosion-resistant Armco Stainless Steels slash replacement costs because they last longer. But in parts of paper machines and other equipment around your mill, stainless helps you save other ways too.

Because the surface of stainless is dense, slime can't get a good grip. As a result, it's easily cleaned. Maintenance is reduced. And besides, by keeping stock freer of rust and other foreign matter, stainless helps keep stock clean, cuts rejects.

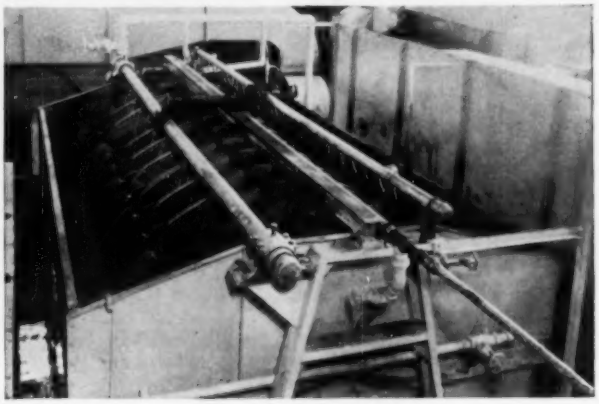
GRADES FOR ANY SERVICE

There's a grade of Armco Stainless suited to almost any service conditions in your mill. Screening and piping, ducts and stock chests, for example, work better and last longer when they're stainless.

Write us for complete information on the many uses for Armco Stainless Steels in pulp and paper mill equipment. And for help in selecting the *right* stainless grade for a particular job, let one of our engineers confer with you and your equipment manufacturer.



Facing wire on this disc-type saveall filter is Type 316 stainless steel—to combat rust contamination and retard white water corrosion.



Here's the average life reported by a midwestern mill for stainless steel and non-ferrous cylinder mold facings:
6 months (non-ferrous facings)
9 months (non-ferrous facings over stainless rods, wire & backing)
28 months (stainless facing cloth, non-ferrous backing)
3-4 years (all stainless)

ARMCO STEEL CORPORATION

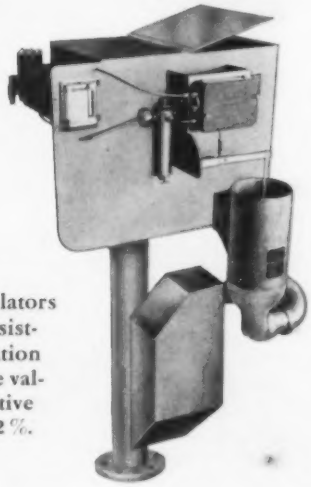
796 CURTIS STREET, MIDDLETOWN, OHIO

ARMCO®

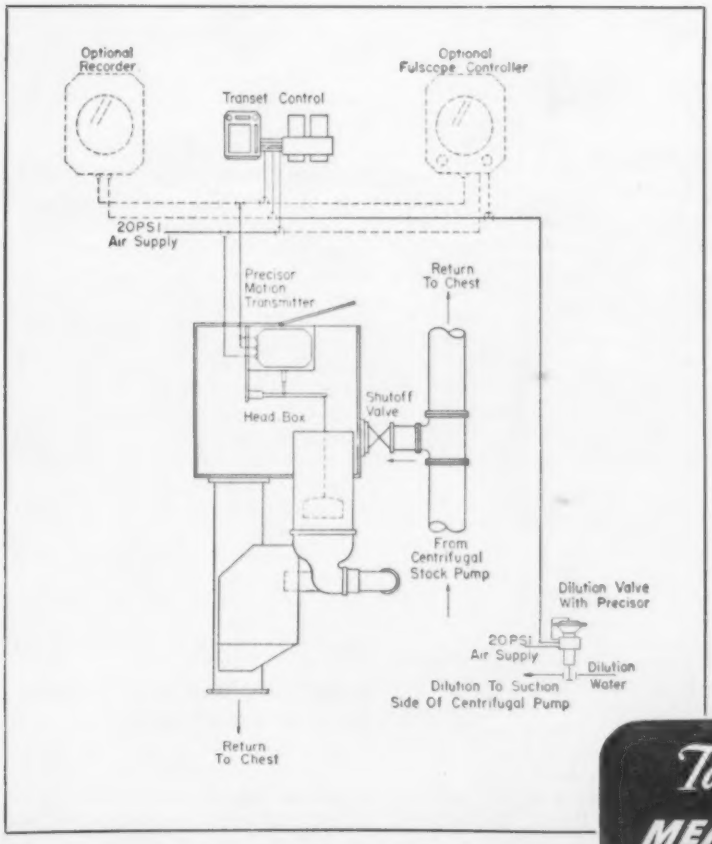
SHEFFIELD STEEL DIVISION • ARMCO DRAINAGE & METAL PRODUCTS, INC. • THE ARMCO INTERNATIONAL CORPORATION

FAMOUS NAMES IN INDUSTRY...

Trimbey Machines, Inc. and Taylor Instrument Companies



Trimbey Consistency Regulators are guaranteed to hold consistency with a maximum variation of 0.1% above or below the value required. They are sensitive to changes of less than 0.02%.



PROVEN Consistency Regulator + Dependable Instrumentation = Continuous Uniformity of Product.

Trimbey Consistency Regulators equipped with Taylor instrumentation have been performing a service to the paper industry for many years in maintaining the proper consistency of paper stock . . . automatically.

Trimbey Regulators are manufactured in two styles—the standard design for 2% to 3¼% consistencies and the heavy density model for consistencies from 3% to 5%—to meet nearly all requirements of a mill.

Taylor Instrumentation on the Trimbey Consistency Regulator plays an important part in helping to keep consistencies at the desired value. Illustrated above is the packaged-unit design of the regulator using the Taylor TRANSET* Strip Chart Recorder mounted directly on Trimbey Regulator Vat. A TRANSET Controller plugs-in to the recorder, giving the proper control responses to provide for rapid and accurate valve adjustment on start up conditions without overshooting the control point. The Taylor PRECISOR* Position Indicator accurately transmits level changes to the control system so that a uniform consistency may always be maintained.

Trimbey Regulators may be equipped with Taylor FULSCOPE* Recording Controllers or Recorders having round charts to give 24-hour records as illustrated by dotted lines in the drawing. When considering consistency problems, be sure to specify the Trimbey Consistency Regulator with Instrumentation by Taylor. Ask your Taylor Field Engineer for further information, or write Taylor Instrument Companies, Rochester, N. Y., or Toronto, Canada.

*Trade Mark

Taylor Instruments
MEAN ACCURACY FIRST

MORE PAPER PEOPLE

(Continued from page 12)

W. W. Clarke

R. M. Graff

Longview Promotes Clarke

William W. Clarke has been promoted from paper mill superintendent to general superintendent in charge of all pulp and paper manufacturing of Longview Fibre Co. in Longview, Wash. Mr. Clarke graduated from the University of Washington in 1933 with a degree in chemical engineering. He accepted employment that year with Longview Fibre in the technical control department and was appointed beater room foreman in 1935. In 1941, he became assistant paper mill superintendent and in 1948 paper mill superintendent. Bill Clarke has served as chairman of the Pacific Coast Disision of the Superintendents' Association and has been active in TAPPI.

Russell Graff Heads Pulp Mill

Russell M. Graff has been promoted by Longview from assistant pulp mill superintendent to pulp mill superintendent. Graff is a chemical engineer, graduated from Oregon State College in 1941. That year he joined the technical control department of Longview and was appointed assistant pulp mill superintendent in November of 1948.

H. A. Womack

Womack Advances In Paper Mill

Harold A. Womack has been promoted from assistant paper mill superintendent to first assistant paper mill superintendent. A veteran of 27 years paper mill experience with Longview, he began his employment in the machine room.

W. J. Shelton, formerly superintendent of pulp and paper manufacturing, has left Longview to accept a position with Georgia-Pacific Paper Co.

Scott Transfers And Promotes

Several shifts and promotions of personnel at Scott Paper Co.'s converting plant in Hoboken, N. J., have been announced.

Ralph Wythes, production manager at Hoboken, will become plant manager at the Sandusky, Ohio converting plant. He succeeds Albert Garrett, formerly Hoboken production manager, who has been named plant manager of Scott's Marinette Div. mill in South Glens Falls, N. Y.

W. Maxwell Donnelly, formerly maintenance engineer, has been named to the Hoboken post vacated by Mr. Wythes. William C. Krause will assume Mr. Donnelly's duties, in addition to his own as plant engineer. John H. Wartluft, traffic manager at Hoboken, has been named to the industrial sales division in the Detroit district. He has been replaced by Edward F. Reese, finishing division manager at Hoboken.

Ralph D. Weston, draftsman at the Hoboken plant engineering department, has been shifted to a similar position at Scott's Chester, Penna. headquarters.

Ernest Grisi, formerly finishing foreman at Hoboken, has been named to a similar position in the Detroit mill; Frank Murphy and Peter Gilmartin, calendering and waxing foremen at the Hoboken mill, have been transferred to the Everett, Wash., plant to begin a new wax paper department in Scott's West Coast division.

Westfield Makes Glasing Assistant to Vice-President

Joseph S. Glasing superintendent of the Russell, Mass. mill of Westfield River Paper Co. is now assistant to the vice-president of manufacturing. Mr. Glasing started with the company in 1916 as a calender runner, and after serving as calender foreman, finishing foreman and assistant superintendent, he became superintendent in 1945.

At the same time, it is reported that Edwin A. Vassar becomes superintendent of the Russell mill. After attending Middlebury College, Mr. Vassar worked in various sales, administrative and supervisory positions in the paper industry in New England. He started with Westfield in the production planning department in 1941, and in 1946 assumed full responsibility for production planning and traffic.

Other changes include the appointment of Watson Beecher, production planning supervisor of the West Conshohocken, Pa. mill as production manager of the company, and William H. Griffiths of West Cochohocken as supervisor of production planning for the Pennsylvania operation.

Mando Promotes Two Supts.

Dr. Cecil L. Hess has been promoted to assistant to the general superintendent of the pulp and paper division of the Minnesota and Ontario Paper Co.'s specialty mill at International Falls, Minn. He will work under N. L. Jurgensen, general superintendent of the International Falls pulp and paper division.

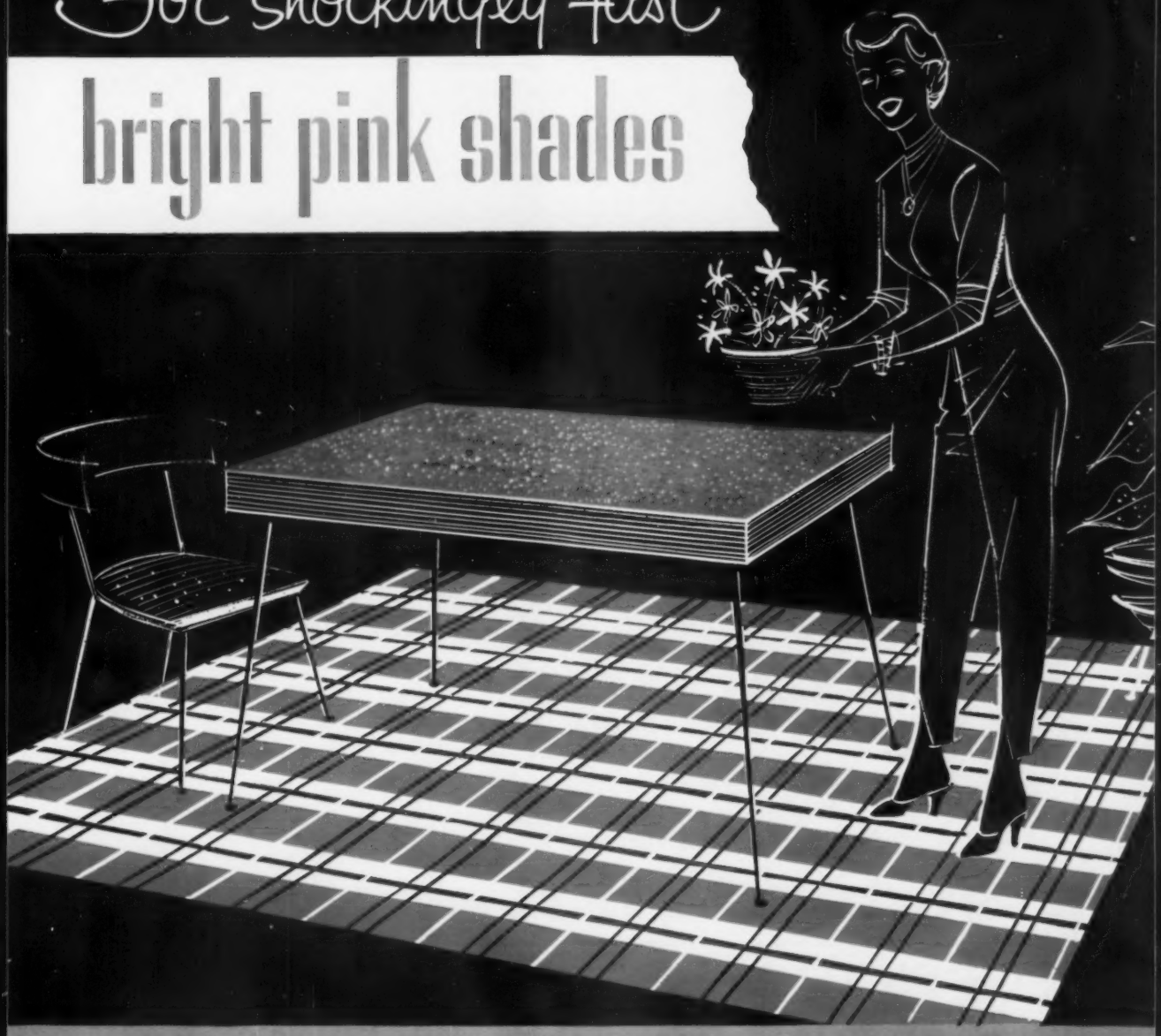
Dr. Hess joined Mando in 1951 as a member of the company's research laboratory. From 1951 to 1952, he was on military leave of absence. Upon his return, he became supervisor of pulp, paper and by-products research at the laboratory.

Dr. Jerome P. Brezinski has been promoted to supervisor of paper research at Mando's research laboratory at International Falls. He started at Mando in 1954 as a research chemist and was promoted to senior research chemist in 1955.

Engelhard and Nicewander New to Trees Staff

Folke Becker, president, Trees For Tomorrow, Inc., announced last week the addition of two new staff members to the industry-sponsored organization. They are Robert Engelhard, Milwaukee, and Walter Nicewander, Lafayette, Ind.

For shockingly fast bright pink shades



PERMANENT CARMINE FR DISPERSED PASTE

Of all the azoic red pigments, this is the fastest to light, maintaining its superior light-fastness even in pale pink shades.

Permanent Carmine FR Dispersed Paste is a non-settling, free-flowing paste, readily dispersible in water.

We strongly recommend this newly developed paste for any type of paper where superior light-fastness is required. It is outstanding for such specialty applications as plastic overlay sheets and twisting tissues.

We invite you to call upon our Technical Service Laboratories and our years of practical mill experience for cooperation on any paper-coloring or paper-matching problem. Let us send you samples and technical data on Permanent Carmine FR Dispersed Paste.

from Research to Reality . . .

gdc gaf

GENERAL DYESTUFF COMPANY

A SALES DIVISION OF

GENERAL ANILINE & FILM CORPORATION

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IN CANADA: CHEMICAL DEVELOPMENTS OF CANADA, LTD., MONTREAL

W. J. Dixon Retires

St. Regis Paper Company announces that Willard J. Dixon retired on March 1, as vice-president.

Mr. Dixon became assistant secretary of the company in 1929, secretary in 1937, and vice-president in 1938, and has been a director of the company since 1941. His resignation as secretary in November, 1955, and his current resignation as vice-president, are pursuant to the company's retirement plan. He will continue as a director and will be available to the company as a consultant.

Mr. Dixon was secretary, treasurer, and a director of the Bates Valve Bag Co. of Chicago at its acquisition by St. Regis in 1929.

Mr. Dixon has served the paper industry in many activities of its associations. He is a member of the Board of Governors of the American Paper & Pulp Assn. and is President of the Paper Shipping Sack Manufacturers Assn. During World War II, he was President of the Kraft Paper Manufacturers Assn.

Reiners Succeeds Kelley At Port Angeles

Claude P. Kelley, paper mill superintendent at the Port Angeles Division, of the Crown Zellerbach Corp., has retired after 38 years service with the company.

John M. Reiners, day shift foreman in the paper machine department, replaces Mr. Kelley. Claude L. Rivetts replaces Mr. Reiners. Both are veteran employes of the Port Angeles division.

Mr. Kelley started work in the paper industry in 1908 with the Brown Co. of New Hampshire and worked for several other paper firms in the east. He went to Ocean Falls, B. C. for the Crown Zellerbach Corp. in 1917. He later became superintendent at the Powell River, B. C. plant. He was transferred to Port Angeles September 1, 1948 as paper mill superintendent and held that position until retired under the Crown Zellerbach retirement plan.

At a dinner attended by local mill personnel, Mr. Kelley was presented with a gift by his fellow employes.

Sorg Advances Harrison and Jack

Following the promotion of Robert Shane to superintendent of the Oglesby mill paper machines, Sorg Paper has advanced James Harrison to Mr. Shane's former position of tour foreman of the Oglesby machines. Beginning with Sorg in 1943 as a fourth hand, Mr. Harrison has also been machine tender and back tender.

Also recently promoted is John Jack, named assistant to the general superintendent of Papermaking, manufacturing division. He has been with Sorg since 1936, beginning as a refiner supervisor. In 1954 he was made production assistant in refining and coloring in the manufacturing division.

This announcement is neither an offer to sell nor a solicitation of an offer to buy any of these Securities. The offer is made only by the Prospectus.

Riegel Paper Corporation

$6,000,000 3⅞% Sinking Fund Debentures

Dated February 1, 1956 — *Due February 1, 1981*

Interest payable August 1 and February 1 in New York City

Price 100% and Accrued Interest

194,155 Shares Common Stock

($10 Par Value)

Rights, evidenced by subscription warrants, to subscribe for these shares at $30 a share have been issued by the Company to its Common Stockholders, which rights will expire at 3:30 P.M., Eastern Standard Time, on March 20, 1956, as more fully set forth in the Prospectus.

The several underwriters may offer shares of Common Stock at prices not less than the Subscription Price set forth above (less, in the case of sales to dealers, the concession allowed to dealers) and not more than the highest known price at which the Common Stock is being offered concurrently in the over-the-counter market by other security dealers, plus an amount equal to any concession allowed to dealers.

Copies of the Prospectus may be obtained from only such of the undersigned as may legally offer these Securities in compliance with the securities laws of the respective States.

MORGAN STANLEY & CO.

BLYTH & CO., INC. — *GOLDMAN, SACHS & CO.*

MERRILL LYNCH, PIERCE, FENNER & BEANE — *SMITH, BARNEY & CO.*

STONE & WEBSTER SECURITIES CORPORATION

INGALLS & SNYDER — *HORNBLOWER & WEEKS*

W. E. HUTTON & CO. — *PAINE, WEBBER, JACKSON & CURTIS*

March 7, 1956.

Hay Appointed to New Powell River Post

Appointed to the industrial engineering department of the Powell River Co. is chemist-geologist Alex L. Hay, M.A., who joined the British Columbia company nine years ago. He supervised airfield construction in native Manitoba during the war and conducted geological surveys for the federal government and Imperial Oil Co.

There's **MORE** Cooling Surface in these deep-ribbed **MOTORS**

No Day is FRYDAY

with these Allis-Chalmers MOTORS

● Frying of insulation is impossible under normal conditions with the extra-large cooling surface of Allis-Chalmers rib-type TEFC motors. The result—you expect and get longer motor life.

The engineered partner of A-C motors is Allis-Chalmers control.

Get Complete Information

As a new machinery component or as replacement, specify Allis-Chalmers. Discuss your particular application with your nearby A-C distributor, A-C district office, or write Allis-Chalmers, General Products Division, Milwaukee 1, Wisconsin.

ALLIS-CHALMERS

A-C ALLIS-CHALMERS

A-4921

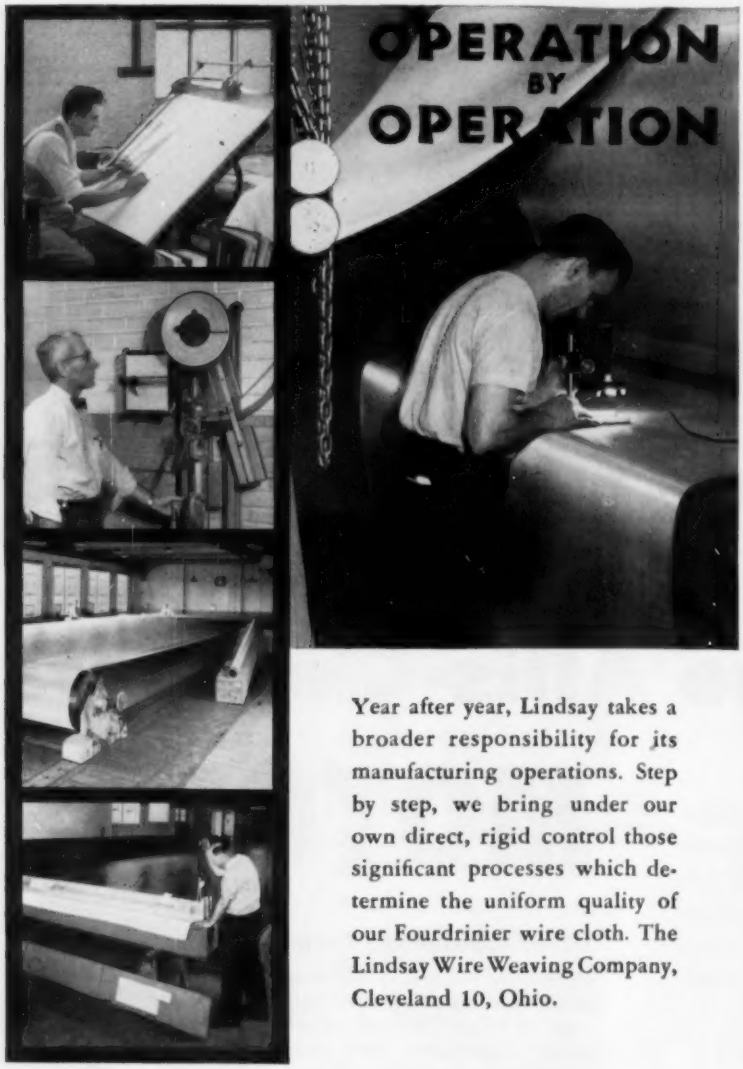
Sproull Leaves Herty, Succeeded by Belvin

Dr. Reavis C. Sproull, director of the Herty Foundation Laboratory, has resigned, effective April 1, to accept a position as manager of technical services for Philip Morris. His headquarters will be in Richmond, Va.

William L. Belvin, assistant to the director, was unanimously named the new director succeeding Dr. Sproull. He has been assistant director at Herty since last August. He came from New York where he was assistant director of research for the American Chicle Co.

A native of Raleigh, N. C., Belvin received his B.S. degree in chemical engineering from North Carolina State in 1932. He received his master's degree in the same field two years later.

Before joining American Chicle he was head of the division of applied chemistry at the Southern Research Institute, Birmingham, Ala. He also has been professor of chemical engineering in the Bureau of Research at the University of Arkansas and prior to that senior chemist of the National Aniline Division of Allied Chemical & Dye Corp.



Year after year, Lindsay takes a broader responsibility for its manufacturing operations. Step by step, we bring under our own direct, rigid control those significant processes which determine the uniform quality of our Fourdrinier wire cloth. The Lindsay Wire Weaving Company, Cleveland 10, Ohio.

LINDSAY WIRES Since 1904

FOR PAPER MANUFACTURING

PRICES OF MATERIALS

Aluminum sulphate:
cml. bags, c.l. wks. .....cwt. $1.85 / —
iron-free, c.l. wks. .....cwt. 3.55 / —

Casein, acid prec.:
dom. sh. pt. c.l. (30 mesh)... 32.00 /34.00
Arg. ex. dock, duty paid..... 28.00 /29.00
New Zeal., do. ..... 34.00 /35.00

Caustic soda:
c.l. wks. solid, 76%.....cwt. 4.20 / –
flak. & grd. 400-lb. drums, c.l. 4.50 / –
liquid 50% tanks.... 2.80 / –
liquid 70% tanks.... 2.90 / –

China clay:
dom. air-float, c.l. wks. ..ton 10.00
water washed, lump, filler..ton 11.00
coating .....ton 17.60 /40.0
Imported, ex. ship short tons 20.00 /35.0

Chlorine:
single-unit tanks, works..cwt. 3.05 / –
multiple unit, 2-5 cars per yr. 3.92 / 5.1½

Formaldehyde:
USP, inh. dms. c.l. wks..lbs. .0675/ —
lcl., E. wks. .....lb. .072 /.0725

Lime:
hydrated bags, wks.....tons 18.71 /20.21

Gum rosin:
K, M, N, drms, c.l. Savan, cwt. 8.30 / 8.35

Rosin size:
70%, gum & pale grds., tank cars, south, sh. pt..... cwt. 7.24 / 7.28

Salt cake:
dom. bulk, 100% anh. wks. ton 28.00 / —
imp. f.o.b. Saskatchewan..ton 18.00 / {Cana. funds

Soda ash:
light, 58%, bags, wks.....cwt. 1.75 / 1.80
bulk .....cwt. 1.45 / 1.50

Sodium silicate, 40° Be.:
tank-cars, wks.....cwt. 1.00 / —
drums, c.l. wks.....cwt. 1.35 / —
(47°) Be. WW.
tank-cars, wks.....cwt. 1.60 / —
drums, c.l. wks.....cwt. 1.95 / —

Sodium peroxide:
dms. c.l. E. of Miss. .....lb. .186
l.c.l. do. .....lb. .191 / .196

Soybean, protein:
chem. (sol., wks. c.l. bags...lb. .23 / —

Sulphuric acid:
60° Be. cbys. c.l. wks....cwt. 2.00 / —
l.c.l. wks.....cwt. 2.45 / —
tank-cars, wks.....ton 18.60 / —

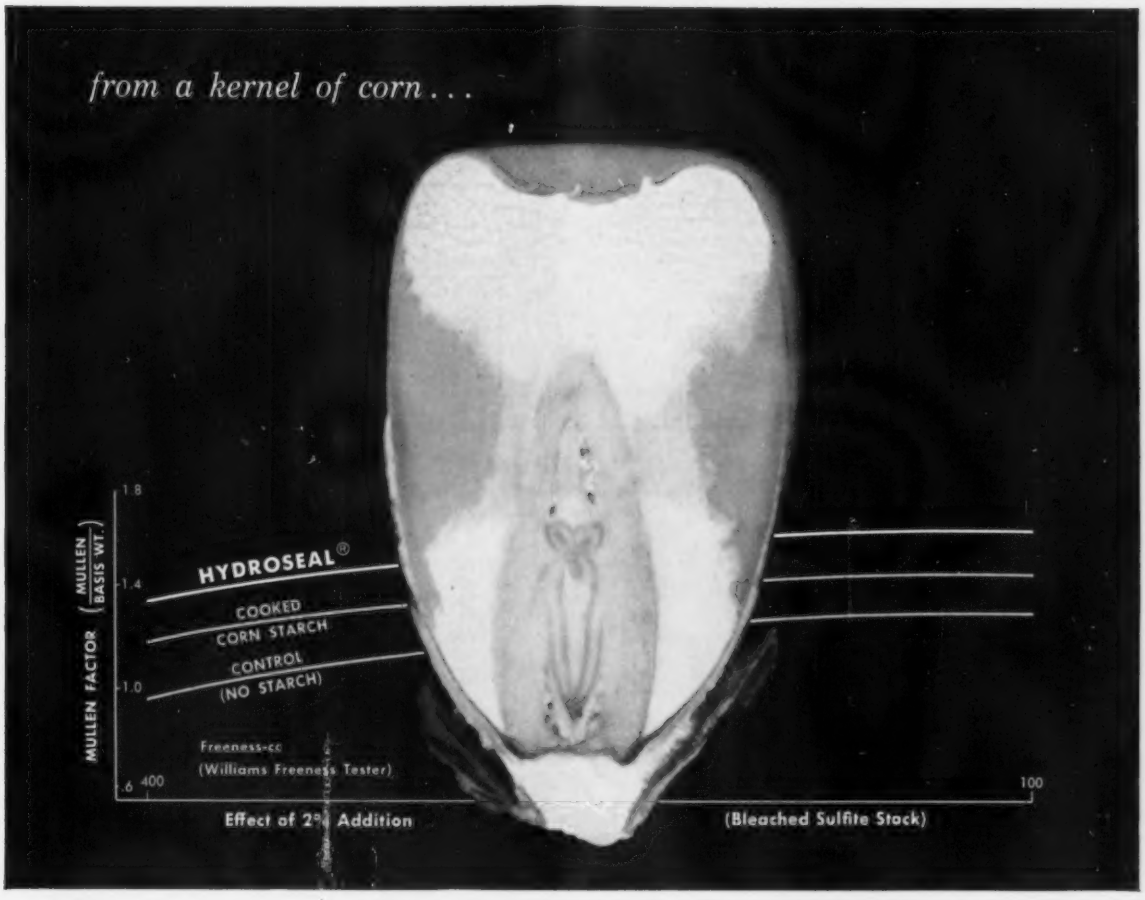
Sulphur:
crude, c.l. mines, contract, long ton 26.50 / —
f.o.b. vessels Gulf.....do. 31.00 /33.00

Sulphur dioxide:
liquid, coml. cyl., wks.....lb. .10 / .12
multi-unit cars .....lb. .0535/

Starches:
corn, multiwalls, c.l. prod. plant:
pearl .....cwt. 6.39 / —
white, dextrins .....cwt. 7.55 / 7.80
chlorinated .....cwt. 8.15 / —
potato, Idaho, c.l. wks....cwt. 6.00 / —
East, fr. all. 50 cents cwt.
potato, Maine. f.o.b. wks. cwt. 5.75 / —

Talc:
domestic, sacks,
c.l. wks., N.Y. .....ton 27.00 /32.00

Titanium dioxide:
anatase, c.l. deld. E, bags..lb. .22½/ —
l.c.l. deld .....lb. .23½/ —
rutile, c.l. deld. .....lb. .24½/ —
l.c.l. deld. .....lb. .25½/ —



STRONGER PAPER! SMOOTHER FINISH!

HYDROSEAL is a specially processed starch for beater addition. It will increase Mullen, fold, tear, pick and tensile strength. Moreover, indications are that it also improves wet web strength.

HYDROSEAL gives a smoother finish in paper and board by laying fuzz and improving formation. It increases interply bonding of cylinder board and also minimizes tendencies to blister.

HYDROSEAL is not ordinary cold water swelling starch. It's pregelatinized and tailored to give the specific properties best for beater addition. It resists breakdown during refining and more is retained. It goes further pound for pound.

HYDROSEAL is versatile. Works in all types of paper, including high grade bonds, kraft and chip. Write for further information about Hydroseal, or about any of National's complete line of starches and adhesives for the paper industry.

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STARCH PRODUCTS INC.

270 Madison Avenue, New York 16 • 3641 So. Washtenaw Avenue, Chicago 32 • 735 Battery Street, San Francisco 11

POIRIER CONTROLS

Proven By Test To Be Best

Automatic Controls For

Weight

Consistency

Caliper

Metering

Proportioning

Make Up Water

Level Control

Associated Operations

Let our engineers study your operation and furnish you with complete details on how Poirier Controls will help you as they have others.

No cost — no obligation
Write For Full Information

POIRIER CONTROL COMPANY

Waterville 1, Maine

Specialists in Stock Control Equipment

BRUSHES
for
PAPER COATING
DAMPENING
POLISHING
FELTING
SPECIAL BOARD
POLISHING

GUS RIEDEL & SON

P. O Box 774

KALAMAZOO, MICHIGAN

PRICES OF FIBERS

MARKET WOOD PULP

First Quarter Contract Prices Per Short Air-Dry Ton

	Delivered Basis		Varying Freight Allowances†		
	U.S.	Canadian	Swedish	Finnish	Norwegian
Groundwood	$82.50/ 90.00	$82.50/ 90.00	‡$83.00/ 86.00‡	‡$83.00/ 88.00‡	‡$77.50/ 90.00
Kraft, Blchd.	147.00/152.00	150.00/155.00	‡$147.50/150.00‡		$150.00/ —
Kraft, Blchd. Hdwd.	145.00/ —		‡$137.50/ —		
Kraft, Semi-bleached	135.00/140.00	135.00/140.00	‡$137.50/140.00‡	*140.00/ —	
Kraft, Unbl.	115.50/125.00*	115.00/125.00	†120.00/130.00	120.00/145.00	
Sulphite, Blchd.	145.00/150.00	150.00/ —	*150.00/ —	*150.00/ —	145.00/147.50
Sulphite, Unblchd.	125.00/ —	130.00/ —	†130.50/ —	*130.00/ —	
Sulphite, Unb'l. Gl'an		129.00/ —	†129.00/ —		
Soda, Blchd.	142.50/145.00	145.00/ —			

‡ F.o.b. Shipping Point. ‡ On Dock Atlantic Ports. * Freight allowed.

NEW YORK RAG MARKET

New Domestic Cotton Cuttings

Delivered Mill Basis

PRICES NOMINAL

	Per 100 lbs
No. 1 White Shirts	$15.25/$15.50
No. 1 Unblchd. Muslins	17.00/ 17.50
Blchd. & Unblchd. Underwears	17.00/ 18.00
No. 1 Light Silesias	7.25/ 7.75
No. 1 Light Blue Overalls	9.00/ 9.50
Percales	7.00/ 7.50
No. 1 Light Prints	5.75/ 6.25
Suntan Khakis	6.00/ 6.50
Cottonades	3.50/ 4.00
No. 1 Washables	3.00/ 3.50

Old Domestic Cotton Rags

(Prices to Dealers, F.o.b. Ship. Pt.)

	Per 100 lbs
Mixed White	$3.00/$3.50
Cotton Pants & Overalls	2.25/ 2.50
Thirds and Blues, Repacked	1.75/ 2.00
No. 2 Roofing	27.00/ —

COTTON LINTERS

Memphis Market

F.o.b. Oilmills

	Feb. 21 Per 100 lb
Grade 1 n.a.	
2	$9.10/ $7.70
3 1st cut—felting	7.00/ 5.90
4	5.25/ 4.20
5	3.75/ 3.05
6	3.00/ 2.75
7	2.75/ —

*Based on 73% cellulose.

Bagging

(Prices to Dealers, F.o.b. N. Y.)

	Per 100 lbs
Foreign Gunny	$5.00/$5.25
Foreign Scrap Burlap	5.00/ 5.25
Heavy Wool Tares	6.50/ —
Austr. Wool Pouches	5.75/ —
Domestic Manila Rope	7.75/ 8.25
Domestic No. 1 Sisal Strings	4.25/ 4.50

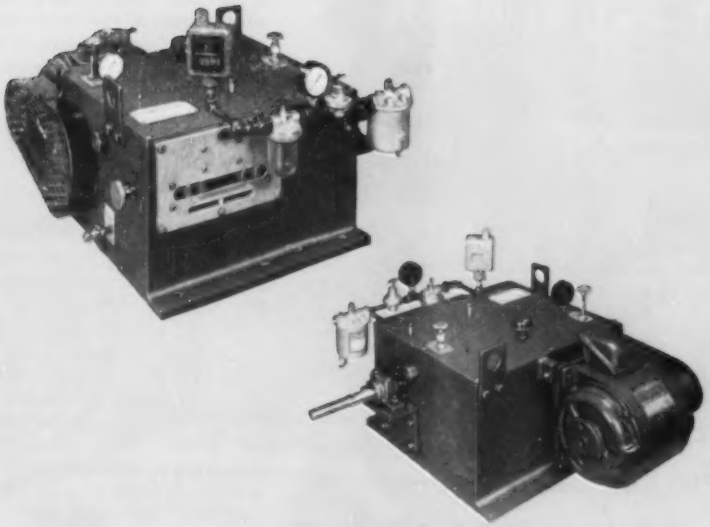
WASTE PAPER MARKET

Mill Prices, f.o.b. Trucks Shipping Point - Includes Brokerage

These quotations are a partial indication of the price range on volume tonnage in each market on the date specified, as gathered from major dealers. SPECIAL PACKINGS AND SPOT TONNAGE NOT INCLUDED. Prices nominal.

	New York Mar. 5	Boston Mar. 5	Chicago Mar. 5	Los Angeles Mar. 5
No. 1 Mixed Paper	$16.00/ 18.00	18.00/ —	17.00/ —	14.00/ —
No. 1 News	27.00/ —	24.00/ 25.00	20.00/ —	14.00/ —
Overissue News	29.00/ 32.00	24.00/ 26.00	25.00/ —	14.00/ —
Mill Wrappers	25.00/ 28.00	22.00/ 26.00	30.00/ —	14.00/ —
Old Corrugated Containers	27.00/ 30.00	23.00/ 24.00	30.00/ —	19.00/ —
Super Resorted Kraft Paper	40.00/ 50.00	45.00/ 50.00	40.00/ —	45.00/ —
New Double Kr. Ld. Corr. Cuts (Semi-chem. medium)	40.00/ 42.00 45.00/ 52.50	35.00/ 42.50 45.00/ 52.50	40.00/ — 45.00/ 52.50	35.00/ 40.00 — / —
New 100% Kraft Corr. Cuts	55.00/ 65.00	55.00/ 65.00	75.00/ —	45.00/ —
New Br. Kraft Env. Cuts	90.00/100.00	85.00/ 95.00	80.00/ —	60.00/ —
New Br. Kr. Bag Waste Prntd.	65.00/ 75.00	60.00/ 70.00	70.00/ —	60.00/ —
New Br. Kr. Bag Waste Unprrtd	75.00/ 80.00	80.00/ 90.00	85.00/ —	— / —
No. 1 Groundwood Shvs.	45.00/ 50.00	32.00/ 35.00	40.00/ —	27.00/ 30.00
White Newsblanks	80.00/ 82.50	65.00/ 75.00	65.00/ —	65.00/ —
No. 1 Soft White Shvs.	90.00/100.00	80.00/ 85.00	80.00/ —	— / —
Hd. Wht. Shvs.	115.00/120.00	115.00/125.00	120.00/ —	105.00/ —
Hd. Wht. Env. Cuts	135.00/145.00	135.00/145.00	120.00/ —	120.00/ —
Col. Tab. Cards	75.00/ 80.00	75.00/ 77.00	65.00/ —	44.00/ —
Manila Tab. Cards, bales	100.00/110.00	95.00/103.00	100.00/ —	79.00/ —
No. 1 Col. Ledger	40.00/ 50.00	45.00/ 50.00	50.00/ —	35.00/ —
White Ledger	75.00/ 80.00	70.00/ 75.00	70.00/ —	55.00/ —
Mixed Book & Mag.†	30.00/ 31.00	30.00/ —	27.50/ —	— / —
No. 1 Rep'd. Hvy. Books‡	35.00/ 40.00	33.00/ 35.00	40.00/ —	— / —

† Includes Time & Life; no coarse groundwood. ‡Not to exceed 10% groundwood. ‡ Deld.



Hydroscillator

HELP YOUR REWINDER *DO A BETTER JOB*

Install a Ross Midwest Fulton Hydroscillator on your rewinder and keep wrinkles out of your rolls – also hard and soft spots. And what better way to eliminate customer complaints!

Ross Midwest Hydroscillators are hydraulically operated – can be set to deliver strokes of from 1/8" to 3¾" as required. Oscillating speed from 0" to 24" per minute. Thrust up to 11,000#. Effective on rolls of all sizes – even the very largest. Space required – very little.

Although comparatively new, a score or more mills have already installed Hydroscillators and pronounced them "good" – a really worthwhile help at the rewinder.

Ask for Bulletin No. 101

ROSS MIDWEST FULTON CORP.

DAYTON, OHIO

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NEWS OF ASSOCIATIONS

AT THE WESTERN MICHIGAN LUNCHEON during "Paper Week" in New York—(L-R) Front Row—Ed Stephenson, Sutherland Paper Co.; Roger McVickar, Otsego Falls Paper Mill; Gordon J. Gill, Penick & Ford Co., Ltd.; A. H. Nadelman, Western Michigan College. Back Row—Kent Dickerman, recent graduate; Ken Rawlinson, Mittag & Volger, Inc.; Harvey B. Herman, Thomson Paper Mills; Jerry Hale, Minerals & Chemical Corp. of America; Virgil W. Westdale, Burroughs Corp. and Ed DeGalan, Central Laboratories of General Foods Corp.

Educator to Address APPMSA at Lake Placid

Dr. James E. Allen, Jr., President of the University of the State of New York and Commissioner of Education, is to be the luncheon speaker for June 14, at the 37th Annual Convention of the Superintendents Assn. This convention is to be held at the Lake Placid Club, Essex County, N. Y. The dates for the meeting are June 12-14.

Dr. Allen has had a most varied career in the field of education. He has been a member of the staff of the West Virginia State Education Department.

He has served as a consultant to the President's Commission on Higher Education and prepared the Commission's volume on the "Financing of Higher Education." This service was rendered in 1946-47.

Dr. Allen is author of "State School Fiscal Policy for New Jersey", co-author of several monographs and reports in educational administration and a contributor to educational magazines.

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Gearhart in May For Joint N. W. Meeting

The joint meeting of the Pacific Section of the TAPPI and the Pacific Coast Division of the Superintendents Association is again scheduled for Gearhart, Ore. at the Gearhart Hotel May 17-19, Thursday through Saturday. This announcement was recently made by the co-chairman of the event. Dr. John M. McEwen, Pulp Division, Weyerhaeuser Timber Co., representing TAPPI, and Max A. Bailey, Westminster Paper Co., representing Superintendents.

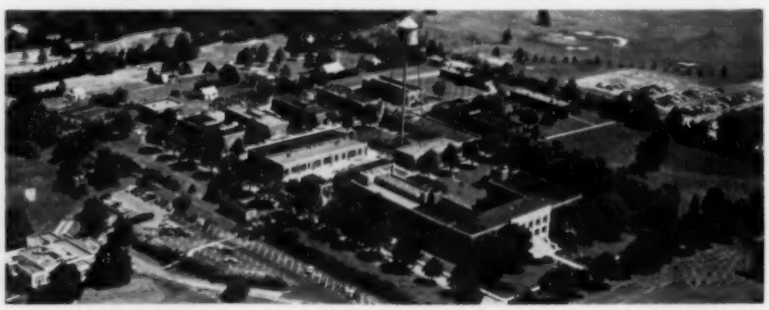
A special feature of the program this year—a departure from the usual format of the Gearhart meetings—is a visit on Friday, May 18, to the Crown Zellerbach Corporation Clatsop tree farm near Gearhart. This trip is being arranged to include the ladies as well as the men attending the convention.

The technical program is in the hands of Jack V. Savage, Crown Zellerbach Corp., for the Superintendents, and Dr. Ben T. Briggs, Rayonier, Inc., for TAPPI. Savage has announced that there will be four group meetings on Saturday morning for those interested in sulphite and kraft pulping, papermaking and converting. According to Dr. Briggs, the program on Saturday afternoon will be based on TAPPI's testing program. Further information on papers and speakers will be given later.

Information concerning the program or pre-registration material can be obtained from the convention secretary, Miss Kay Fralick, 3420 S. W. Macadam Avenue, Portland 1, Oregon.

Fibre Box Assn. To Meet at Boca Raton

The Spring Meeting of the members of Fibre Box Assn. has been called to be held at Boca Raton Hotel and Club, Boca Raton, Fla., on April 24 and 25. A meeting of the association's Board of Directors is scheduled for Tuesday afternoon, April 24.



HERCULES EXPERIMENTAL STATION, Wilmington, Dela., is the site of one of the plant tours planned on May 10 for those attending the 7th Annual TAPPI Coating Conference. The conference is to be held in the Benjamin Franklin Hotel, Philadelphia, May 7-9. The general theme is "Synthetic Adhesives for Paper Coatings."

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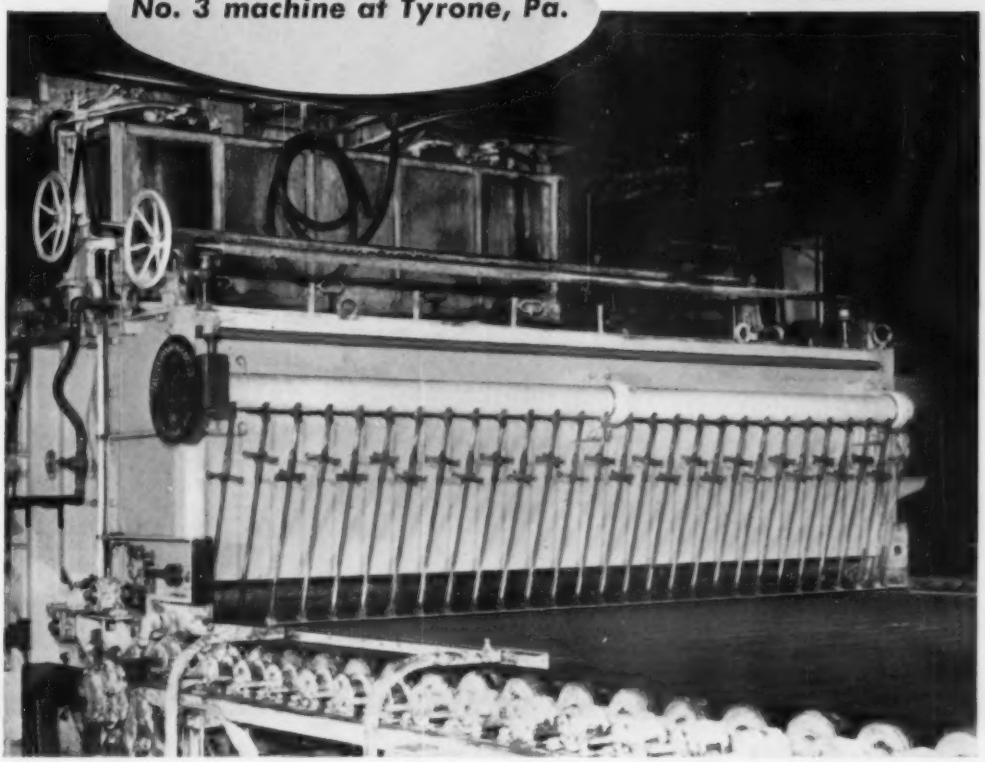
No. 3 machine at Tyrone, Pa.



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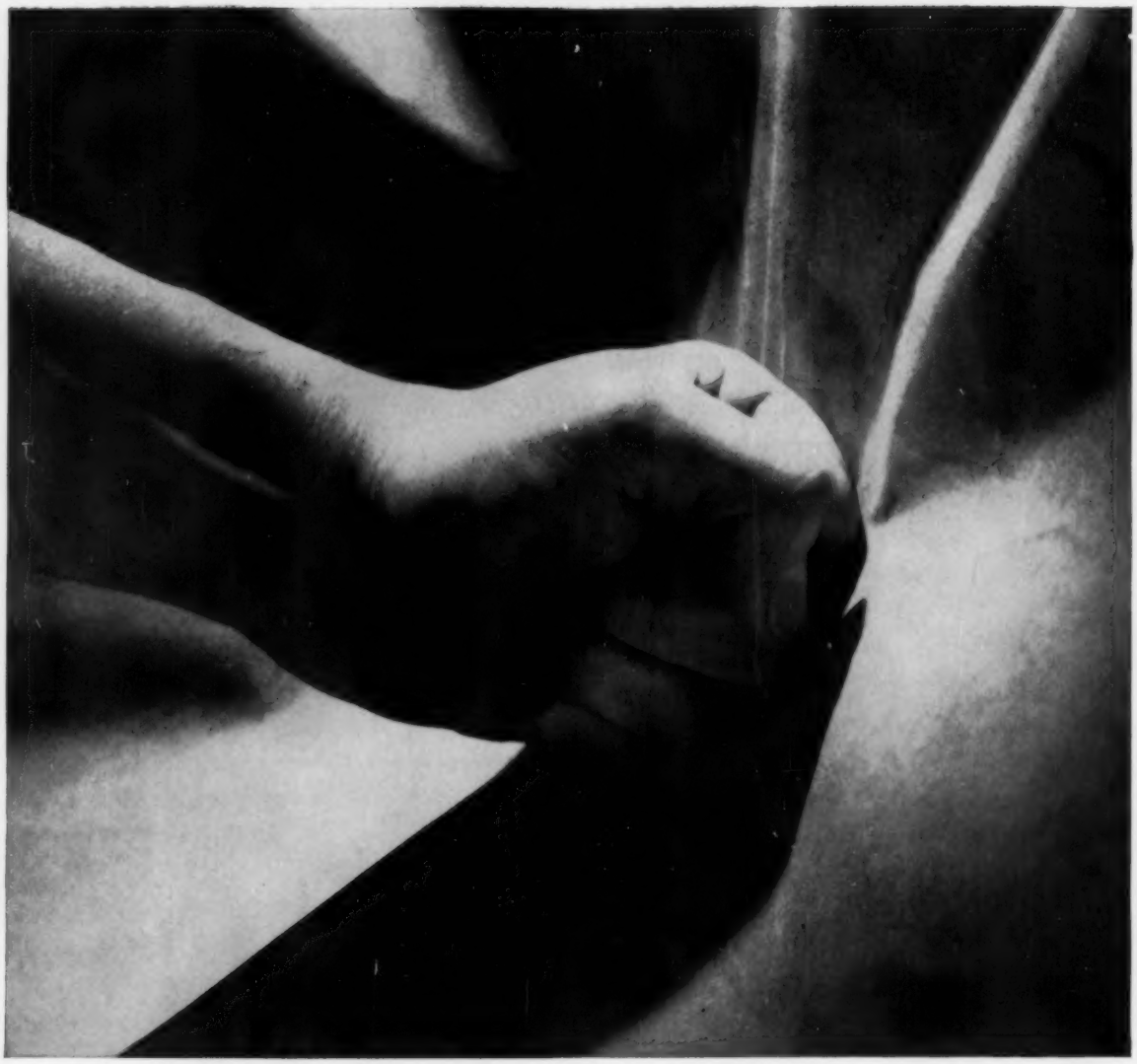

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Why not test Pittsburgh Fiber Glass on your own production runs soon? Complete information on Pittsburgh yarns, roving, and chopped strands, or the names of weavers supplying cloth made from Pittsburgh yarns, can be readily obtained from our executive offices or district sales offices in Chicago, Cincinnati, Cleveland, Detroit, Houston, Los Angeles, New York, Philadelphia or St. Louis. Pittsburgh Plate Glass Company, Fiber Glass Division, One Gateway Center, Pittsburgh 22, Pa.

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NEWS OF SUPPLIERS

B. Majani

Balfour Clark

J. J. Melead

• BLACK-CLAWSON CO. announces that Bernard Majani has joined the sales staff at the Dilts Division, Fulton, N.Y.

He joined the Dilts Division sales staff in 1955 where he is presently training in sales and engineering work on the complete line of paper and plastics converting equipment offered by the Dilts Division.

Balfour Clark, former estimating engineer at Black-Clawson's Paper Machine Division, Watertown, N.Y., has been appointed sales engineer and transferred to the company's Dilts Division at Fulton, N.Y.

Mr. Clark joined the former Bagley & Sewall Co. in 1937, worked in various phases of the business, including production, winder sales and engineering and as chief estimator on paper machines and machine auxiliaries.

James J. Melead has been promoted to assistant chief engineer of Dilts, converting equipment division at Fulton. Prior to his advancement, Mr. Melead's assignment was that of project engineer on complete coating and laminating installations, as well as other converting machinery built by the Dilts Division.

• BARRETT DIVISION, ALLIED CHEMICAL & DYE CORP. reports the appointment of John C. Esher as assistant sales manager, Chemical Sales Department. He will be in charge of plasticizers, naphthalene, resins and other coal-tar chemicals.

It is further reported that J. E. Shand has been appointed assistant to L. W. Miller, manager of chemical sales for the Barrett Division.

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Snap size head you want into ratchet drive ring, from either side—it can't fall out. Dies reverse easily for close-to-wall threading. 00R and OR, ⅛" to 1"; 111R and 11R, ⅛" to 1¼"; 12R, ⅛" to 2". Free carrier with sets. Conduit and special dies available. Real work-savers—at your Supply House!

RIDGID *Bolt Threaders, too—No. 00R-B, ¼" to 1", National Coarse or fine thread, efficient drop-head dies.*

"Threaded Pipe—It's Tight—It's Best—Costs Less"

RIDGID

Work-Saver Pipe Tools

The Ridge Tool Company, Elyria, Ohio, U. S. A.

A. M. Bretschger

R. E. Elden

• BECCO CHEMICAL DIV., Food Machinery and Chemical Corp., has appointed Alfred M. Bretschger plant manager of the Vancouver plant. Mr. Bretschger replaces Henry P. Vogt, who will take over the position of plant manager of Becco's main plant in Buffalo, N.Y.

Becco also has announced the appointment of Richard E. Elden to the newly created position of production manager at the Vancouver plant.

• DEWEY & ALMY CHEMICAL CO., division of W. R. Grace & Co., has reported the election of George W. Blackwood as president and William L. Taggart, Jr., as executive vice-president of the Division.

Mr. Blackwood joined the company in 1937 and has been actively associated with the various phases of the container and chemical specialties division of the company. He has been a vice-president of Dewey and Almy Chemical Co. since 1952.

Mr. Taggart joined Dewey and Almy in 1927. He has been associated with manufacturing and management activities of the company's seventeen plants all over the world. He has been a vice-president of Dewey and Almy since 1948.

• CHAIN BELT CO. reports that J. W. Snavely has been named assistant manager of the Conveyor and Process Equipment Division. He will continue as manager of Conveyor Sales. Also B. G. Schneider has been named chief engineer of the Conveyor & Process Equipment Division. Formerly he was chief engineer for conveyor equipment only.

• CHEMICAL LININGS INC., Watertown, N. Y., reports the opening of a new branch office in the Pacific Northwest. The address of the branch is 421 Jones Bldg., Seattle 1, Wash. W. J. Heuer, West Coast manager for chemical Linings Inc., will be in charge of the new office.

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Figures of the Week

PAPER PRODUCTION RATIO REPORT —American Paper & Pulp Ass'n. Figures

(Production as percent of normal capacity)

COMPARATIVE WEEKLY SUMMARIES

1956	Jan. 28 99.4	Feb. 4 101.4	Feb. 11 101.1	Feb. 18 102.4r	Feb. 25 101.0
1955	Jan. 29 94.9	Feb. 5 96.1	Feb. 12 97.1	Feb. 19 95.5	Feb. 26 98.3

r Revised.

COMPARATIVE MONTHLY SUMMARIES

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
1955	93.6	96.6	97.9	98.0	99.3	97.4	85.5	96.2	93.8	101.2	100.6	94.0	94.9
1956	98.9‡												

‡ Preliminary.

COMPARATIVE YEARLY SUMMARIES

	1949	1950	1951	1952	1953	1954	1955	1956
Year to Date	89.5	93.9	100.0	97.8	95.2	94.3	93.9	100.1
Year Average	83.7	95.8	98.0	88.6	92.3	91.6	94.9	

All of the above data is based on tonnage reported to American Paper and Pulp Association. Does not include mills reporting to National Paperboard Association, except in isolated cases where both paper and paperboard are produced and separate tonnage figures are not readily available. Does not include mills producing newsprint exclusively.

PAPERBOARD OPERATING RATIOS†

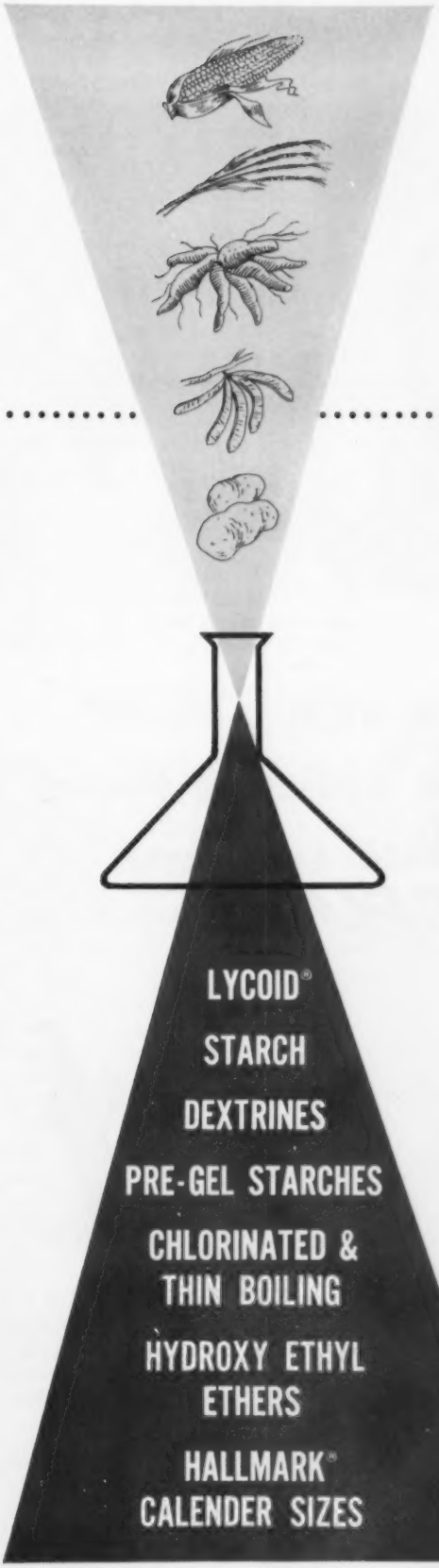
1956	Jan. 28 102	Feb. 4 101	Feb. 11 100	Feb. 18 99	Feb. 25 100
1955	Jan. 29 94	Feb. 5 94	Feb. 12 95	Feb. 19 95	Feb. 26 95

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
1955	92	95	96	94	97	97	84	99	97	102	101	92	96
1956	100												

***Note:** In the above tables all the ratios shown are on the basis of a normal 6 and 7 day capacity.*
† Percents of operation based on "Inch-Hours" reported on a 6-day basis to the National Paperboard Association.

SUMMARY OF PAPERBOARD STATISTICS—National Paperboard Ass'n. Figures

ITEM	THIS WEEK ENDING Feb. 25, 1956	LAST WEEK ENDING Feb. 18, 1956	CUMULATIVE TO DATE Jan. 1, 1956 to Feb. 25, 1956
% Activity	100%	99%	100%
	Tons	*Tons*	*Tons*
Total Production	291,984	291,777	2,229,730
Liner	93,605	100,665	763,748
Corrugating Material	46,350	46,829	357,182
Chip & Filler Board	6,047	5,710	44,154
Total Containerboard	146,002	153,204	1,165,084
Folding	54,595	49,409	399,593
Set-Up	13,087	14,236	105,202
Special Food Board	21,379	24,934	174,746
Other	56,921	49,994	385,105
Total Boxboard	145,982	138,573	1,064,646
Total Orders	*Tons*	*Tons*	
Received	248,753	226,447	
Unfilled End of Week	499,696	545,180	



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• STEIN, HALL & CO. reports the election of Daniel H. Lipman as a director of the company. Mr. Lipman is also a vice-president and general sales manager.

G. L. Brown

• F. C. HUYCK & SONS, manufacturer of papermakers' felts and industrial fabrics, Rensselaer, N. Y., has elected George L. Brown to the newly created post of vice-president for purchasing.

Mr. Brown, a licensed professional engineer, joined the company in 1920 as chief draftsman. He became assistant plant engineer in 1922, purchasing agent in 1934 and director of purchases in 1953, which position he has held to date.

Jack Bradt

• HOWE SCALE CO., Rutland, Vt., has appointed Jack Bradt sales manager of the Truck Division.

Mr. Bradt is a graduate of Cornell University in Mechanical Engineering. He came to Howe from The Safety Car Heating and Lighting Co., Inc. which, in January of this year, acquired the Howe Scale Co.

OBITUARIES

Hugh F. Flanagan, 64, of Detroit, Mich., for the last 45 years a salesman for the Chope-Stevens Paper Co., died February 22 in Detroit.

Abraham Fogel, 78, founder and chairman of the board of the American Paper Box Co. Ltd. died March 1 at Daytona Beach, Fla. A native of Warsaw, he came to Canada in 1907.

He worked in Montreal boxmaking plants until 1910, when he founded the German Paper Box Co., whose name was changed to the American Paper Box Co. in 1914. He was president of the company until seven years ago, when he became chairman of the board.

George Seifert, 60, retired president of the Angeles Paper Box Co., died February 21 at his home in Los Angeles.

William H. Rourke, 78, West Hartford, Conn., president of the Rourke Eno Paper Co., died February 25.

Mr. Rourke started in the paper business in 1906 as a wholesale dealer and mill agent with an establishment at 423 Main St., West Hartford. Early the following year he consolidated the business with the E. Tucker Co., and was made president and manager of the concern.

The business grew rapidly and in 1929 he opened a branch warehouse in New Haven.

He was a past president of the New England Paper Merchant's Assn.

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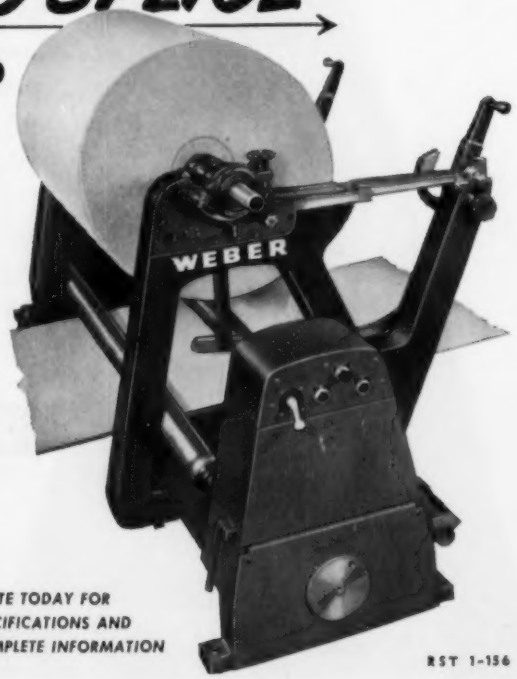
7 Eliminates down time, speeds up web feed to all types of paper converting equipment.



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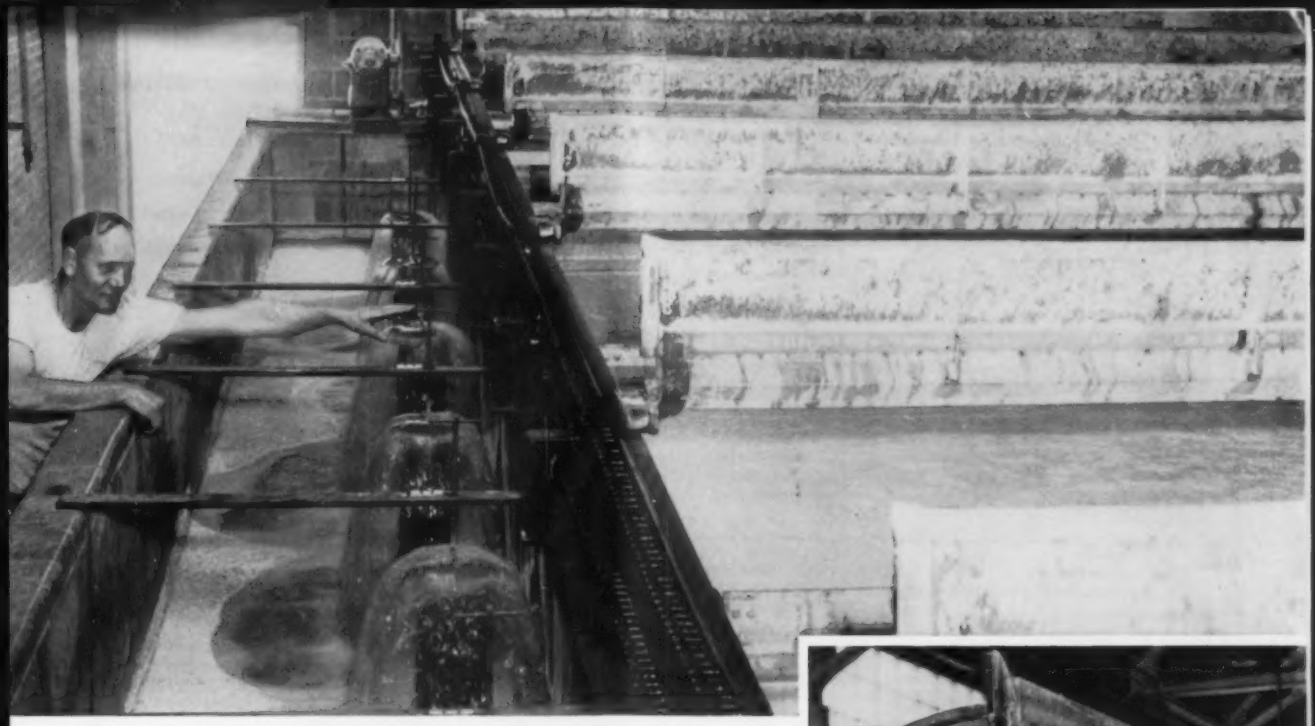

Stainless Steel blades help filter water from paper machines to recover fibers that might be lost.

"High purity paper is not possible without Stainless Steel,"

says Kalamazoo Vegetable Parchment Company, Parchment, Michigan

Kalamazoo Vegetable Parchment Company (KVP for short) makes a variety of papers that range from obstetrical sheets and food wrapping down through embalmers' sheets. It is vital that a high level of purity be maintained for many of the products; in fact, just 10 parts per million of copper impurity will completely ruin some parchments.

Like other manufacturers, KVP eliminated troublesome contamination with liberal use of Stainless Steel. Today, Stainless Steel filters separate solids and pass clean pulp stock to the head box of the paper machines. Only Stainless Steel filters process the 22 million gallons of water that are used every day. Miles of Stainless tubing and piping have reduced replacement costs and raised purity standards everywhere. In the field of stream pollution, KVP is proud to be one of the first companies to really solve the problem, and Stainless Steel made that possible.

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This Stainless Steel pulper recovers excess paper (broke) from the paper machines. pH varies from about 3 to 8.

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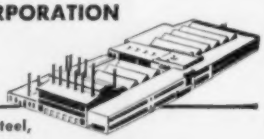

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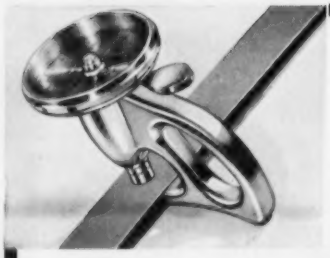

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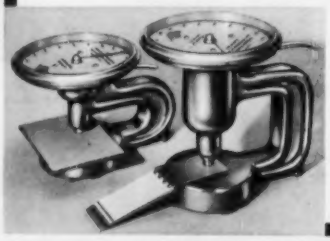

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PAPER TRADE JOURNAL

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A superintendent or foreman of superintendent calibre who has had experience in the manufacture of solid board for insulation, decorative type boards, acoustic tile, and hardboard is needed to assist in the building of a new mill and when built to be in charge of its operation. This mill will be located in Quebec Province. Reply in confidence giving personal, education and work history, including references and salary desired to Box No. 56-86 care Paper Trade Journal.

M-19

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Industrial Relations Department TF

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Industrial Relations Department

BOWATERS SOUTHERN PAPER CORPORATION

CALHOUN, TENNESSEE

TF

FOREMEN

Three foremen or men of foremen calibre who have experience in the manufacture of solid board for insulation, decorative type boards, acoustic tile and hardboard are needed to assist in the building of a new mill and when built to be in charge of shift operations. This mill will be located in Quebec Province. Reply in confidence giving personal, education, and work history, including references and salary desired to Box No. 56-85 care Paper Trade Journal.

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BUSINESS STAFF

Arthur E. Gordon, Business Mgr.

Frederick B. Grosse, Production Mgr.

Francis J. Gordon
15 West 47th Street, New York 36, N. Y. Plaza 7-2370

George Heitzeberg
15 West 47th Street, New York 36, N. Y. Plaza 7-2370

H. K. Vinton
CHICAGO 3, ILL.: Room 1020, 79 West Monroe St. CEntral 6-2784

H. L. Poulton
PITTSBURGH, 11, PA.: 610 Pennridge Road. Hemlock 1-1571

McDonald-Thompson Company
SAN FRANCISCO, CAL.: 625 Market St. YUkon 6-0647

LOS ANGELES, 5, CAL.: 3727 West Sixth Street. DUnkirk 7-5391
DENVER, 2, COLO.: 222 Colorado Nat'l. Bank Bldg. KEystone 4-4669
SEATTLE 4, WASH.: National Bldg.—ELliott 3767
HOUSTON 6, TEXAS: Room 214, 3217 Montrose Blvd. JAckson 9-6711
Dallas, 6, Texas: 5526 Dyer Street

Georg J. Linder, Frankfurt a Main, Wittlesbacher Alle 60, Germany — Telefon 46372

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